



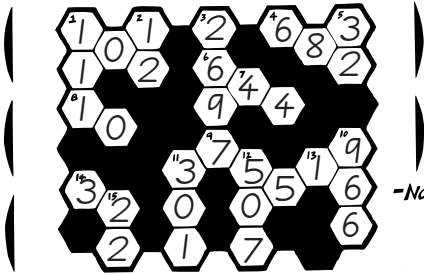
# THE ANSWERS

# -HEXANUMBER

Write these numbers into the Hexanumber.

1	ONE HUNDRED AND ELEVEN
2	TWELVE
3	TWO THOUSAND SIX HUNDRED AND NINETY SEVEN
4	THIRTY TWO
5	NINE HUNDRED AND SIXTY SIX
6	THREE HUNDRED AND ONE
7	FIVE HUNDRED AND SEVEN
8	TWENTY TWO

9	ONE HUNDRED AND TWO
10	SIX HUNDRED AND EIGHTY TWO
11	SIX HUNDRED AND FORTY FOUR
12	TEN
13	SEVEN HUNDRED AND FIFTY FIVE
14	SIXTEEN
15	THIRTY TWO



-NOW WRITE THE NUMBERS LEFT AS WORDS!

- 2 one hundred and one
- 5 thirty eight
- 7 forty nine
- 9 seventy three
- 10 nine thousand one hundred and fifty

Put these boxes in the right order so that the numbers go from smallest to largest.

E	N	M	I	O	A	N	T	L	O	E	G	S
15	3	12	7	2	106	17	8	1	23	55	6	24

"WHAT DID THE BEACH SAY WHEN THE TIDE CAME IN?"

L	O	N	G	T	I	M	E	N	O	S	E	A
1	2	3	6	8	9	12	15	17	23	24	55	106

# +ADDITION

WARNING - ADDITION CAN BE ADDICTIVE... BENEFICIAL... FUN...

## LEVEL 1

$\begin{array}{r} 2 \\ +3 \\ \hline 5 \end{array}$	$\begin{array}{r} 4 \\ +4 \\ \hline 8 \end{array}$	$\begin{array}{r} 8 \\ +2 \\ \hline 10 \end{array}$	$\begin{array}{r} 6 \\ +5 \\ \hline 11 \end{array}$	$\begin{array}{r} 7 \\ +2 \\ \hline 9 \end{array}$	$\begin{array}{r} 9 \\ +4 \\ \hline 13 \end{array}$	$\begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array}$
$\begin{array}{r} 6 \\ +8 \\ \hline 14 \end{array}$	$\begin{array}{r} 9 \\ +5 \\ \hline 14 \end{array}$	$\begin{array}{r} 2 \\ +6 \\ \hline 8 \end{array}$	$\begin{array}{r} 4 \\ +3 \\ \hline 7 \end{array}$	$\begin{array}{r} 3 \\ +3 \\ \hline 6 \end{array}$	$\begin{array}{r} 5 \\ +8 \\ \hline 13 \end{array}$	$\begin{array}{r} 6 \\ +6 \\ \hline 12 \end{array}$
$\begin{array}{r} 4 \\ +9 \\ \hline 13 \end{array}$	$\begin{array}{r} 5 \\ +5 \\ \hline 10 \end{array}$	$\begin{array}{r} 2 \\ +8 \\ \hline 10 \end{array}$	$\begin{array}{r} 1 \\ +9 \\ \hline 10 \end{array}$	$\begin{array}{r} 8 \\ +8 \\ \hline 16 \end{array}$	$\begin{array}{r} 3 \\ +9 \\ \hline 12 \end{array}$	$\begin{array}{r} 4 \\ +1 \\ \hline 5 \end{array}$

## LEVEL 2

$\begin{array}{r} 3 \\ +2 \\ \hline 7 \end{array}$	$\begin{array}{r} 1 \\ +7 \\ \hline 9 \end{array}$	$\begin{array}{r} 5 \\ +4 \\ \hline 9 \end{array}$	$\begin{array}{r} 8 \\ +2 \\ \hline 12 \end{array}$	$\begin{array}{r} 6 \\ +3 \\ \hline 13 \end{array}$	$\begin{array}{r} 5 \\ +4 \\ \hline 15 \end{array}$	$\begin{array}{r} 3 \\ +2 \\ \hline 12 \end{array}$
$\begin{array}{r} 5 \\ +4 \\ \hline 11 \end{array}$	$\begin{array}{r} 8 \\ +7 \\ \hline 18 \end{array}$	$\begin{array}{r} 5 \\ +6 \\ \hline 16 \end{array}$	$\begin{array}{r} 8 \\ +3 \\ \hline 17 \end{array}$	$\begin{array}{r} 4 \\ +9 \\ \hline 20 \end{array}$	$\begin{array}{r} 6 \\ +7 \\ \hline 19 \end{array}$	$\begin{array}{r} 8 \\ +5 \\ \hline 20 \end{array}$

## LEVEL 3

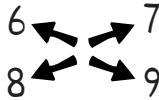
$\begin{array}{r} 42 \\ +37 \\ \hline 79 \end{array}$	$\begin{array}{r} 46 \\ +23 \\ \hline 69 \end{array}$	$\begin{array}{r} 23 \\ +11 \\ \hline 34 \end{array}$	$\begin{array}{r} 12 \\ +12 \\ \hline 24 \end{array}$	$\begin{array}{r} 15 \\ +13 \\ \hline 28 \end{array}$	$\begin{array}{r} 18 \\ +11 \\ \hline 29 \end{array}$	$\begin{array}{r} 14 \\ +15 \\ \hline 29 \end{array}$
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14 + 13 = 27    12 + 6 = 18    15 + 33 = 48    35 + 27 = 59    17 + 21 = 38

## LEVEL 4

$\begin{array}{r} 32 \\ +20 \\ \hline 68 \end{array}$	$\begin{array}{r} 27 \\ +12 \\ \hline 59 \end{array}$	$\begin{array}{r} 40 \\ +21 \\ \hline 71 \end{array}$	$\begin{array}{r} 37 \\ +21 \\ \hline 79 \end{array}$	$\begin{array}{r} 63 \\ +12 \\ \hline 89 \end{array}$	$\begin{array}{r} 32 \\ +15 \\ \hline 59 \end{array}$	$\begin{array}{r} 21 \\ +16 \\ \hline 49 \end{array}$
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30 + 12 + 15 = 57    42 + 22 + 15 = 79    16 + 12 + 21 = 49



# -MORE ADDITION

THE EXPERTS AGREE... YOU MUST PRACTICE!



$4+2=6$	$7+2=9$	$8+6=14$	$3+5=8$	$8+0=8$	$6+3=9$
$2+2=4$	$5+6=11$	$6+5=11$	$5+5=10$	$9+2=11$	$6+4=10$
$8+8=16$	$6+8=14$	$9+5=14$	$7+9=13$	$3+1=4$	$4+1=5$
$7+8=15$	$4+9=13$	$3+7=10$	$5+3=8$	$7+1=8$	$8+2=10$
$9+3=12$	$7+0=7$	$9+7=16$	$3+8=11$	$6+1=7$	$5+8=13$
$15+5=20$	$18+2=20$	$4+5=9$	$12+6=18$	$11+7=18$	$15+3=18$
$16+7=23$	$11+6=17$	$11+9=20$	$19+6=25$	$16+7=23$	$17+8=22$
$19+3=22$	$15+8=23$	$8+11=19$	$18+0=18$	$9+16=25$	$13+4=17$
$9+12=21$	$18+7=25$	$16+6=22$	$15+7=22$	$17+4=21$	$13+9=22$
$12+4=16$	$15+9=24$	$19+4=23$	$17+5=22$	$12+8=20$	$18+7=25$

$\begin{array}{r} 5 \\ +3 \\ \hline 13 \end{array}$	$\begin{array}{r} 4 \\ +6 \\ \hline 13 \end{array}$	$\begin{array}{r} 7 \\ +7 \\ \hline 14 \end{array}$	$\begin{array}{r} 3 \\ +8 \\ \hline 14 \end{array}$	$\begin{array}{r} 2 \\ +7 \\ \hline 15 \end{array}$	$\begin{array}{r} 1 \\ +7 \\ \hline 12 \end{array}$	$\begin{array}{r} 9 \\ +2 \\ \hline 19 \end{array}$
$\begin{array}{r} 8 \\ +6 \\ \hline 22 \end{array}$	$\begin{array}{r} 4 \\ +3 \\ \hline 9 \end{array}$	$\begin{array}{r} 7 \\ +9 \\ \hline 21 \end{array}$	$\begin{array}{r} 6 \\ +8 \\ \hline 18 \end{array}$	$\begin{array}{r} 2 \\ +9 \\ \hline 18 \end{array}$	$\begin{array}{r} 3 \\ +5 \\ \hline 16 \end{array}$	$\begin{array}{r} 6 \\ +4 \\ \hline 19 \end{array}$
$\begin{array}{r} 2 \\ +2 \\ \hline 4 \end{array}$	$\begin{array}{r} 5 \\ +6 \\ \hline 11 \end{array}$	$\begin{array}{r} 4 \\ +8 \\ \hline 12 \end{array}$	$\begin{array}{r} 7 \\ +3 \\ \hline 10 \end{array}$	$\begin{array}{r} 5 \\ +1 \\ \hline 6 \end{array}$	$\begin{array}{r} 9 \\ +0 \\ \hline 9 \end{array}$	$\begin{array}{r} 7 \\ +8 \\ \hline 15 \end{array}$
$\begin{array}{r} 6 \\ +3 \\ \hline 18 \end{array}$	$\begin{array}{r} 4 \\ +9 \\ \hline 23 \end{array}$	$\begin{array}{r} 7 \\ +8 \\ \hline 29 \end{array}$	$\begin{array}{r} 3 \\ +7 \\ \hline 26 \end{array}$	$\begin{array}{r} 2 \\ +6 \\ \hline 18 \end{array}$	$\begin{array}{r} 1 \\ +5 \\ \hline 16 \end{array}$	$\begin{array}{r} 9 \\ +9 \\ \hline 36 \end{array}$
$\begin{array}{r} 1 \\ +4 \\ \hline 5 \end{array}$	$\begin{array}{r} 3 \\ +7 \\ \hline 10 \end{array}$	$\begin{array}{r} 7 \\ +4 \\ \hline 11 \end{array}$	$\begin{array}{r} 0 \\ +7 \\ \hline 7 \end{array}$	$\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$	$\begin{array}{r} 7 \\ +8 \\ \hline 15 \end{array}$	$\begin{array}{r} 5 \\ +6 \\ \hline 11 \end{array}$
$\begin{array}{r} 5 \\ +2 \\ \hline 7 \end{array}$	$\begin{array}{r} 1 \\ +5 \\ \hline 6 \end{array}$	$\begin{array}{r} 8 \\ +8 \\ \hline 28 \end{array}$	$\begin{array}{r} 3 \\ +3 \\ \hline 23 \end{array}$	$\begin{array}{r} 9 \\ +9 \\ \hline 29 \end{array}$	$\begin{array}{r} 8 \\ +1 \\ \hline 28 \end{array}$	$\begin{array}{r} 8 \\ +4 \\ \hline 30 \end{array}$

# -COMPLETE THE ADDITION BOXES

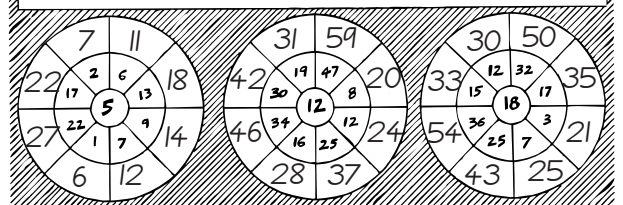
+	5	7	3	8
2	7	9	5	10
6	11	13	9	14
9	14	16	12	17
4	9	11	7	12

+	23	25	26	24
15	38	40	41	39
16	39	41	42	40
17	40	42	43	41

+	4	5	7
5	9	10	12
2	6	7	9

+	12	33	24
16	28	49	40
25	37	58	49

-NOW COMPLETE THE OUTSIDE RING OF EACH CIRCLE BY ADDING THE NUMBER IN THE CENTRE, TO THE NUMBER IN EACH SEGMENT!



ADD 6 TO EACH OF THESE NUMBERS

1	8	7	6	13	19	27
7	14	13	12	19	25	33

Find a place for each card. (You can only use each card once.)

3	6	17	2	19	5	9	14	18	16	7
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$7 + 4 = 11$	$5 + 3 = 8$	$13 + 1 = 14$	$12 + 6 = 18$
$10 + 9 = 19$	$6 + 6 = 12$	$7 + 9 = 16$	$9 + 8 = 17$
$3 + 2 = 5$			

IT'S TIME TO...

# BEAT THE CALCULATOR!

AND INCREASE YOUR ADDITION SKILLS

DIVIDE INTO 2 GROUPS

THE FIRST GROUP USES THE CALCULATOR!

THE OTHER GROUP DOES THE QUESTIONS MENTALLY

WHO WILL BE FIRST?

START NOW!

$\begin{array}{r} 4 \\ + 2 \\ \hline 12 \end{array}$	$\begin{array}{r} 6 \\ + 7 \\ \hline 18 \end{array}$	$\begin{array}{r} 7 \\ + 3 \\ \hline 13 \end{array}$	$\begin{array}{r} 8 \\ + 5 \\ \hline 17 \end{array}$	$\begin{array}{r} 6 \\ + 8 \\ \hline 21 \end{array}$	$\begin{array}{r} 9 \\ + 2 \\ \hline 16 \end{array}$	$\begin{array}{r} 6 \\ + 3 \\ \hline 13 \end{array}$	$\begin{array}{r} 8 \\ + 7 \\ \hline 19 \end{array}$
$\begin{array}{r} 4 \\ + 7 \\ + 6 \\ \hline 24 \end{array}$	$\begin{array}{r} 8 \\ + 8 \\ + 5 \\ \hline 25 \end{array}$	$\begin{array}{r} 3 \\ + 2 \\ + 7 \\ \hline 17 \end{array}$	$\begin{array}{r} 6 \\ + 4 \\ + 7 \\ \hline 24 \end{array}$	$\begin{array}{r} 9 \\ + 5 \\ + 2 \\ \hline 18 \end{array}$	$\begin{array}{r} 7 \\ + 4 \\ + 1 \\ \hline 16 \end{array}$	$\begin{array}{r} 6 \\ + 9 \\ + 4 \\ \hline 30 \end{array}$	$\begin{array}{r} 3 \\ + 8 \\ + 4 \\ + 2 \\ \hline 17 \end{array}$

Which group finished first?

Groups now swap over and try again.

$\begin{array}{r} 7 \\ + 4 \\ \hline 18 \end{array}$	$\begin{array}{r} 3 \\ + 2 \\ + 8 \\ \hline 13 \end{array}$	$\begin{array}{r} 5 \\ + 3 \\ + 4 \\ \hline 12 \end{array}$	$\begin{array}{r} 7 \\ + 5 \\ \hline 19 \end{array}$	$\begin{array}{r} 6 \\ + 2 \\ + 8 \\ \hline 16 \end{array}$	$\begin{array}{r} 3 \\ + 2 \\ \hline 9 \end{array}$	$\begin{array}{r} 6 \\ + 1 \\ + 6 \\ \hline 13 \end{array}$	$\begin{array}{r} 3 \\ + 9 \\ \hline 17 \end{array}$
$\begin{array}{r} 5 \\ + 5 \\ + 2 \\ \hline 19 \end{array}$	$\begin{array}{r} 2 \\ + 4 \\ + 8 \\ \hline 21 \end{array}$	$\begin{array}{r} 9 \\ + 5 \\ + 1 \\ \hline 19 \end{array}$	$\begin{array}{r} 6 \\ + 3 \\ + 1 \\ \hline 14 \end{array}$	$\begin{array}{r} 6 \\ + 2 \\ + 8 \\ \hline 19 \end{array}$	$\begin{array}{r} 7 \\ + 8 \\ + 4 \\ \hline 24 \end{array}$	$\begin{array}{r} 6 \\ + 1 \\ + 5 \\ \hline 18 \end{array}$	$\begin{array}{r} 3 \\ + 7 \\ + 5 \\ \hline 20 \end{array}$
$\begin{array}{r} 3 \\ + 7 \\ \hline 21 \end{array}$	$\begin{array}{r} 6 \\ + 5 \\ + 7 \\ \hline 24 \end{array}$	$\begin{array}{r} 9 \\ + 3 \\ + 7 \\ \hline 24 \end{array}$	$\begin{array}{r} 7 \\ + 6 \\ + 7 \\ \hline 24 \end{array}$	$\begin{array}{r} 8 \\ + 3 \\ + 9 \\ \hline 25 \end{array}$	$\begin{array}{r} 9 \\ + 7 \\ + 6 \\ \hline 30 \end{array}$	$\begin{array}{r} 6 \\ + 4 \\ + 3 \\ \hline 22 \end{array}$	$\begin{array}{r} 9 \\ + 2 \\ + 6 \\ \hline 24 \end{array}$

# SUBTRACTION PRACTICE



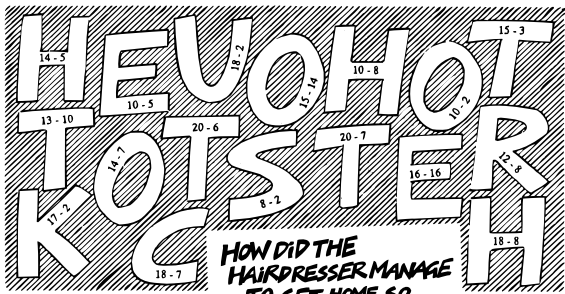
BEAT THE CLOCK!

Can you do these in less than 20 minutes?

$4 - 2 = 2$	$7 - 5 = 2$	$11 - 3 = 8$	$10 - 4 = 6$	$13 - 5 = 8$	$15 - 6 = 9$
$7 - 4 = 3$	$12 - 7 = 5$	$11 - 4 = 7$	$6 - 2 = 4$	$16 - 7 = 9$	$8 - 7 = 1$
$10 - 8 = 2$	$13 - 9 = 4$	$2 - 0 = 2$	$15 - 9 = 6$	$17 - 9 = 8$	$7 - 2 = 5$
$8 - 5 = 3$	$10 - 3 = 7$	$13 - 7 = 6$	$8 - 4 = 4$	$7 - 0 = 7$	$13 - 6 = 7$
$12 - 9 = 3$	$19 - 8 = 11$	$14 - 2 = 12$	$7 - 5 = 2$	$20 - 12 = 8$	$20 - 9 = 11$
$13 - 5 = 8$	$18 - 12 = 6$	$19 - 12 = 7$	$2 - 2 = 0$	$16 - 8 = 8$	$15 - 15 = 0$
$7 - 6 = 1$	$16 - 5 = 11$	$7 - 0 = 7$	$15 - 9 = 6$	$14 - 7 = 7$	$13 - 9 = 4$
$8 - 6 = 2$	$8 - 1 = 7$	$15 - 8 = 7$	$12 - 8 = 4$	$12 - 5 = 7$	$10 - 5 = 5$
$5 - 2 = 3$	$15 - 2 = 13$	$10 - 1 = 9$	$8 - 6 = 2$	$13 - 2 = 11$	$11 - 3 = 8$
$12 - 8 = 4$	$14 - 6 = 8$	$7 - 5 = 2$	$7 - 1 = 6$	$12 - 12 = 0$	$16 - 9 = 7$

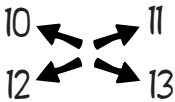
TIME TAKEN

Put each letter above the correct answer below.



HOW DID THE HAIRDRESSER MANAGE TO GET HOME SO QUICK?

HE TOOK THE SHORT CUT!

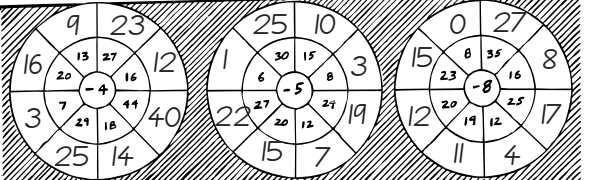


HEAPS MORE SUBTRACTION TO PRACTICE! (REMEMBER TO CORRECT ANY MISTAKES.)

$\begin{array}{r} - \\ 2 \\ 5 \\ + \\ 3 \end{array}$	$\begin{array}{r} - \\ 4 \\ 1 \\ + \\ 2 \end{array}$	$\begin{array}{r} - \\ 7 \\ 3 \\ + \\ 9 \end{array}$	$\begin{array}{r} - \\ 12 \\ 8 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 8 \\ 6 \\ + \\ 4 \end{array}$	$\begin{array}{r} - \\ 9 \\ 4 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 10 \\ 3 \\ + \\ 6 \end{array}$	$\begin{array}{r} - \\ 15 \\ 8 \\ + \\ 11 \end{array}$
$\begin{array}{r} - \\ 6 \\ 10 \\ + \\ 2 \end{array}$	$\begin{array}{r} - \\ 13 \\ 7 \\ + \\ 8 \end{array}$	$\begin{array}{r} - \\ 11 \\ 3 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 20 \\ 4 \\ + \\ 10 \end{array}$	$\begin{array}{r} - \\ 14 \\ 7 \\ + \\ 7 \end{array}$	$\begin{array}{r} - \\ 18 \\ 13 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 17 \\ 19 \\ + \\ 1 \end{array}$	$\begin{array}{r} - \\ 17 \\ 10 \\ + \\ 7 \end{array}$
$\begin{array}{r} - \\ 3 \\ 5 \\ + \\ 1 \end{array}$	$\begin{array}{r} - \\ 2 \\ 4 \\ + \\ 7 \end{array}$	$\begin{array}{r} - \\ 9 \\ 5 \\ + \\ 4 \end{array}$	$\begin{array}{r} - \\ 19 \\ 14 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 16 \\ 6 \\ + \\ 3 \end{array}$	$\begin{array}{r} - \\ 7 \\ 6 \\ + \\ 8 \end{array}$	$\begin{array}{r} - \\ 9 \\ 24 \\ + \\ 4 \end{array}$	$\begin{array}{r} - \\ 13 \\ 18 \\ + \\ 5 \end{array}$
$\begin{array}{r} - \\ 8 \\ 3 \\ + \\ 1 \end{array}$	$\begin{array}{r} - \\ 21 \\ 21 \\ + \\ 8 \end{array}$	$\begin{array}{r} - \\ 19 \\ 19 \\ + \\ 1 \end{array}$	$\begin{array}{r} - \\ 14 \\ 19 \\ + \\ 8 \end{array}$	$\begin{array}{r} - \\ 16 \\ 24 \\ + \\ 8 \end{array}$	$\begin{array}{r} - \\ 9 \\ 18 \\ + \\ 7 \end{array}$	$\begin{array}{r} - \\ 13 \\ 18 \\ + \\ 5 \end{array}$	$\begin{array}{r} - \\ 17 \\ 20 \\ + \\ 5 \end{array}$

$\begin{array}{r} 85 \\ - 23 \\ \hline 62 \end{array}$	$\begin{array}{r} 46 \\ - 22 \\ \hline 24 \end{array}$	$\begin{array}{r} 61 \\ - 21 \\ \hline 40 \end{array}$	$\begin{array}{r} 88 \\ - 45 \\ \hline 43 \end{array}$	$\begin{array}{r} 35 \\ - 10 \\ \hline 25 \end{array}$	$\begin{array}{r} 57 \\ - 25 \\ \hline 32 \end{array}$
$\begin{array}{r} 45 \\ - 27 \\ \hline 18 \end{array}$	$\begin{array}{r} 52 \\ - 16 \\ \hline 36 \end{array}$	$\begin{array}{r} 71 \\ - 26 \\ \hline 45 \end{array}$	$\begin{array}{r} 40 \\ - 13 \\ \hline 27 \end{array}$	$\begin{array}{r} 32 \\ - 15 \\ \hline 17 \end{array}$	$\begin{array}{r} 28 \\ - 19 \\ \hline 9 \end{array}$
$\begin{array}{r} 584 \\ - 247 \\ \hline 337 \end{array}$	$\begin{array}{r} 462 \\ - 235 \\ \hline 227 \end{array}$	$\begin{array}{r} 766 \\ - 129 \\ \hline 637 \end{array}$	$\begin{array}{r} 655 \\ - 127 \\ \hline 528 \end{array}$	$\begin{array}{r} 962 \\ - 444 \\ \hline 518 \end{array}$	$\begin{array}{r} 312 \\ - 205 \\ \hline 107 \end{array}$
$\begin{array}{r} 622 \\ - 347 \\ \hline 275 \end{array}$	$\begin{array}{r} 514 \\ - 263 \\ \hline 251 \end{array}$	$\begin{array}{r} 417 \\ - 242 \\ \hline 175 \end{array}$	$\begin{array}{r} 735 \\ - 455 \\ \hline 280 \end{array}$	$\begin{array}{r} 827 \\ - 754 \\ \hline 73 \end{array}$	$\begin{array}{r} 422 \\ - 157 \\ \hline 265 \end{array}$
$\begin{array}{r} 415 \\ - 267 \\ \hline 148 \end{array}$	$\begin{array}{r} 341 \\ - 166 \\ \hline 175 \end{array}$	$\begin{array}{r} 212 \\ - 158 \\ \hline 54 \end{array}$	$\begin{array}{r} 302 \\ - 244 \\ \hline 58 \end{array}$	$\begin{array}{r} 417 \\ - 259 \\ \hline 158 \end{array}$	$\begin{array}{r} 212 \\ - 165 \\ \hline 47 \end{array}$

Subtract the centre number from the numbers around the circle!



# MORE SUPER SUBTRACTION

TO SHARPEN YOUR SKILLS!

$\begin{array}{r} 85 \\ - 62 \\ \hline 23 \end{array}$	$\begin{array}{r} 46 \\ - 22 \\ \hline 24 \end{array}$	$\begin{array}{r} 61 \\ - 21 \\ \hline 40 \end{array}$	$\begin{array}{r} 88 \\ - 45 \\ \hline 43 \end{array}$	$\begin{array}{r} 35 \\ - 10 \\ \hline 25 \end{array}$	$\begin{array}{r} 57 \\ - 25 \\ \hline 32 \end{array}$	$\begin{array}{r} 73 \\ - 12 \\ \hline 61 \end{array}$	$\begin{array}{r} 87 \\ - 44 \\ \hline 43 \end{array}$
$\begin{array}{r} 45 \\ - 27 \\ \hline 18 \end{array}$	$\begin{array}{r} 52 \\ - 16 \\ \hline 36 \end{array}$	$\begin{array}{r} 71 \\ - 26 \\ \hline 45 \end{array}$	$\begin{array}{r} 40 \\ - 13 \\ \hline 27 \end{array}$	$\begin{array}{r} 32 \\ - 15 \\ \hline 17 \end{array}$	$\begin{array}{r} 28 \\ - 19 \\ \hline 9 \end{array}$	$\begin{array}{r} 44 \\ - 36 \\ \hline 8 \end{array}$	$\begin{array}{r} 44 \\ - 36 \\ \hline 8 \end{array}$
$\begin{array}{r} 587 \\ - 247 \\ \hline 340 \end{array}$	$\begin{array}{r} 462 \\ - 235 \\ \hline 227 \end{array}$	$\begin{array}{r} 766 \\ - 129 \\ \hline 637 \end{array}$	$\begin{array}{r} 655 \\ - 127 \\ \hline 528 \end{array}$	$\begin{array}{r} 962 \\ - 444 \\ \hline 518 \end{array}$	$\begin{array}{r} 312 \\ - 205 \\ \hline 107 \end{array}$	$\begin{array}{r} 463 \\ - 204 \\ \hline 259 \end{array}$	$\begin{array}{r} 633 \\ - 217 \\ \hline 416 \end{array}$
$\begin{array}{r} 622 \\ - 347 \\ \hline 275 \end{array}$	$\begin{array}{r} 514 \\ - 263 \\ \hline 251 \end{array}$	$\begin{array}{r} 417 \\ - 242 \\ \hline 175 \end{array}$	$\begin{array}{r} 735 \\ - 455 \\ \hline 280 \end{array}$	$\begin{array}{r} 827 \\ - 754 \\ \hline 73 \end{array}$	$\begin{array}{r} 422 \\ - 157 \\ \hline 265 \end{array}$	$\begin{array}{r} 635 \\ - 246 \\ \hline 389 \end{array}$	$\begin{array}{r} 352 \\ - 177 \\ \hline 175 \end{array}$
$\begin{array}{r} 415 \\ - 267 \\ \hline 148 \end{array}$	$\begin{array}{r} 341 \\ - 166 \\ \hline 175 \end{array}$	$\begin{array}{r} 212 \\ - 158 \\ \hline 54 \end{array}$	$\begin{array}{r} 302 \\ - 244 \\ \hline 58 \end{array}$	$\begin{array}{r} 417 \\ - 259 \\ \hline 158 \end{array}$	$\begin{array}{r} 212 \\ - 165 \\ \hline 47 \end{array}$	$\begin{array}{r} 302 \\ - 185 \\ \hline 117 \end{array}$	$\begin{array}{r} 443 \\ - 257 \\ \hline 186 \end{array}$

NOW ANSWER THESE SUBTRACTIONS, THEN DECIDE THE QUESTIONS!

$\begin{array}{r} 46 \\ - 25 \\ \hline 21 \end{array}$	$\begin{array}{r} 515 \\ - 246 \\ \hline 247 \end{array}$	$\begin{array}{r} 94 \\ - 72 \\ \hline 22 \end{array}$	$\begin{array}{r} 66 \\ - 40 \\ \hline 26 \end{array}$	$\begin{array}{r} 845 \\ - 365 \\ \hline 480 \end{array}$	$\begin{array}{r} 755 \\ - 216 \\ \hline 539 \end{array}$
$\begin{array}{r} 407 \\ - 221 \\ \hline 286 \end{array}$	$\begin{array}{r} 351 \\ - 163 \\ \hline 188 \end{array}$	$\begin{array}{r} 798 \\ - 229 \\ \hline 569 \end{array}$	$\begin{array}{r} 462 \\ - 245 \\ \hline 217 \end{array}$	$\begin{array}{r} 52 \\ - 16 \\ \hline 36 \end{array}$	
$\begin{array}{r} 52 \\ - 43 \\ \hline 9 \end{array}$	$\begin{array}{r} 634 \\ - 263 \\ \hline 371 \end{array}$	$\begin{array}{r} 60 \\ - 23 \\ \hline 37 \end{array}$	$\begin{array}{r} 654 \\ - 288 \\ \hline 366 \end{array}$	$\begin{array}{r} 873 \\ - 254 \\ \hline 619 \end{array}$	$\begin{array}{r} 71 \\ - 21 \\ \hline 50 \end{array}$

Why do bees have sticky hair? BECAUSE THEY USE HONEY COMBS

Why do bees hum? THEY DON'T KNOW THE WORDS

346 247 188 180 286 371 247 619 531 247 561 286 371 247 531 217 1 247 561 188 217 36 346 371

# ADDITION + SUBTRACTION



**1**  $\begin{array}{r} 4 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 6 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 5 \\ +9 \\ \hline \end{array}$   $\begin{array}{r} 8 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 3 \\ +6 \\ \hline \end{array}$

**2**  $\begin{array}{r} 15 \\ -3 \\ \hline \end{array}$   $\begin{array}{r} 18 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 14 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ -9 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 17 \\ -9 \\ \hline \end{array}$

**3**  $\begin{array}{r} 16 \\ +2 \\ \hline \end{array}$   $\begin{array}{r} 12 \\ +7 \\ \hline \end{array}$   $\begin{array}{r} 15 \\ +3 \\ \hline \end{array}$   $\begin{array}{r} 18 \\ +4 \\ \hline \end{array}$   $\begin{array}{r} 23 \\ +8 \\ \hline \end{array}$   $\begin{array}{r} 25 \\ +5 \\ \hline \end{array}$

**4**  $\begin{array}{r} 15 \\ -4 \\ \hline \end{array}$   $\begin{array}{r} 17 \\ -2 \\ \hline \end{array}$   $\begin{array}{r} 18 \\ -6 \\ \hline \end{array}$   $\begin{array}{r} 22 \\ -7 \\ \hline \end{array}$   $\begin{array}{r} 25 \\ -8 \\ \hline \end{array}$   $\begin{array}{r} 33 \\ -5 \\ \hline \end{array}$

**5**  $\begin{array}{r} 22 \\ +34 \\ \hline \end{array}$   $\begin{array}{r} 27 \\ +12 \\ \hline \end{array}$   $\begin{array}{r} 35 \\ +13 \\ \hline \end{array}$   $\begin{array}{r} 21 \\ +28 \\ \hline \end{array}$   $\begin{array}{r} 16 \\ +21 \\ \hline \end{array}$   $\begin{array}{r} 38 \\ +11 \\ \hline \end{array}$

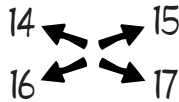
**6**  $\begin{array}{r} 47 \\ -13 \\ \hline \end{array}$   $\begin{array}{r} 28 \\ -15 \\ \hline \end{array}$   $\begin{array}{r} 26 \\ -11 \\ \hline \end{array}$   $\begin{array}{r} 49 \\ -17 \\ \hline \end{array}$   $\begin{array}{r} 33 \\ -22 \\ \hline \end{array}$   $\begin{array}{r} 35 \\ -27 \\ \hline \end{array}$

**7**  $\begin{array}{r} 24 \\ +17 \\ \hline \end{array}$   $\begin{array}{r} 35 \\ +26 \\ \hline \end{array}$   $\begin{array}{r} 28 \\ +13 \\ \hline \end{array}$   $\begin{array}{r} 44 \\ +27 \\ \hline \end{array}$   $\begin{array}{r} 35 \\ +29 \\ \hline \end{array}$   $\begin{array}{r} 28 \\ +15 \\ \hline \end{array}$

**8**  $\begin{array}{r} 24 \\ -18 \\ \hline \end{array}$   $\begin{array}{r} 34 \\ -26 \\ \hline \end{array}$   $\begin{array}{r} 31 \\ -15 \\ \hline \end{array}$   $\begin{array}{r} 24 \\ -17 \\ \hline \end{array}$   $\begin{array}{r} 32 \\ -28 \\ \hline \end{array}$   $\begin{array}{r} 40 \\ -23 \\ \hline \end{array}$

**9**  $\begin{array}{r} 136 \\ +125 \\ \hline \end{array}$   $\begin{array}{r} 224 \\ +117 \\ \hline \end{array}$   $\begin{array}{r} 148 \\ +123 \\ \hline \end{array}$   $\begin{array}{r} 141 \\ +249 \\ \hline \end{array}$   $\begin{array}{r} 278 \\ +115 \\ \hline \end{array}$   $\begin{array}{r} 164 \\ +129 \\ \hline \end{array}$

**10**  $\begin{array}{r} 153 \\ -116 \\ \hline \end{array}$   $\begin{array}{r} 192 \\ -159 \\ \hline \end{array}$   $\begin{array}{r} 234 \\ -107 \\ \hline \end{array}$   $\begin{array}{r} 211 \\ -103 \\ \hline \end{array}$   $\begin{array}{r} 251 \\ -136 \\ \hline \end{array}$   $\begin{array}{r} 222 \\ -115 \\ \hline \end{array}$



# MULTIPLICATION

WRITE THESE ANSWERS!

**LEVEL 1**

$2 \times 3 = 6$   $4 \times 4 = 16$   $3 \times 8 = 24$   $9 \times 2 = 18$   $7 \times 4 = 28$   $3 \times 7 = 21$   
 $9 \times 0 = 0$   $4 \times 8 = 32$   $7 \times 2 = 14$   $8 \times 8 = 64$   $6 \times 5 = 30$   $12 \times 3 = 36$   
 $5 \times 5 = 25$   $6 \times 2 = 12$   $7 \times 8 = 56$   $8 \times 5 = 40$   $6 \times 1 = 6$   $2 \times 2 = 4$   
 $8 \times 4 = 32$   $11 \times 6 = 66$   $4 \times 10 = 40$   $5 \times 9 = 27$   $2 \times 10 = 20$   $4 \times 11 = 44$   
 $5 \times 9 = 45$   $6 \times 8 = 48$   $9 \times 9 = 81$   $2 \times 12 = 24$   $6 \times 8 = 48$   $5 \times 3 = 15$

**LEVEL 2**

$\begin{array}{r} 42 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 11 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 72 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 44 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 61 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 82 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 57 \\ \times 3 \\ \hline \end{array}$

$18 \times 2 = 36$   $17 \times 3 = 51$   $23 \times 4 = 92$   $14 \times 2 = 28$   $35 \times 2 = 70$   $61 \times 3 = 183$

**LEVEL 3**

$\begin{array}{r} 242 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 121 \\ \times 4 \\ \hline \end{array}$   $\begin{array}{r} 611 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 271 \\ \times 2 \\ \hline \end{array}$   $\begin{array}{r} 415 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 316 \\ \times 4 \\ \hline \end{array}$

$\begin{array}{r} 325 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 417 \\ \times 6 \\ \hline \end{array}$   $\begin{array}{r} 525 \\ \times 3 \\ \hline \end{array}$   $\begin{array}{r} 616 \\ \times 8 \\ \hline \end{array}$   $\begin{array}{r} 475 \\ \times 5 \\ \hline \end{array}$   $\begin{array}{r} 395 \\ \times 7 \\ \hline \end{array}$

**LEVEL 4**

$\begin{array}{r} 343 \\ \times 17 \\ \hline \end{array}$   $\begin{array}{r} 221 \\ \times 16 \\ \hline \end{array}$   $\begin{array}{r} 447 \\ \times 22 \\ \hline \end{array}$   $\begin{array}{r} 358 \\ \times 19 \\ \hline \end{array}$   $\begin{array}{r} 246 \\ \times 15 \\ \hline \end{array}$   $\begin{array}{r} 371 \\ \times 23 \\ \hline \end{array}$   $\begin{array}{r} 343 \\ \times 47 \\ \hline \end{array}$

$2401$   $1326$   $888$   $3222$   $1230$   $1113$   $2401$   
 $3430$   $2210$   $8880$   $3580$   $2460$   $7420$   $13720$   
 $5831$   $3536$   $9768$   $6802$   $3690$   $8533$   $16121$

## WRITE THESE SUMS AS A MULTIPLICATION SENTENCE!

THE FIRST ONE IS DONE FOR YOU!

$5 + 5 + 5 = 3 \times 5$      $8 + 8 + 8 + 8 = 4 \times 8$      $4 + 4 = 2 \times 4$   
 $9 + 9 + 9 = 3 \times 9$      $4 + 4 + 4 + 4 + 4 = 5 \times 4$      $2 + 2 + 2 + 2 + 2 = 5 \times 2$   
 $7 + 7 + 7 + 7 + 7 + 7 + 7 = 7 \times 7$      $6 + 6 + 6 + 6 + 6 + 6 + 6 = 8 \times 6$

Multiply each number by 10

16	20	10	28	7	15	8	4	13	10	53	30	400	3142	215	0
160	200	100	280	70	150	80	40	130	100	530	300	4000	31420	2150	0

Multiply each number by 100

2	6	1	15	3	22	18	25	72	100	0	34	500	316	20	567
200	600	100	1500	300	2200	1800	2500	7200	10000	0	3400	50000	31600	2000	56700

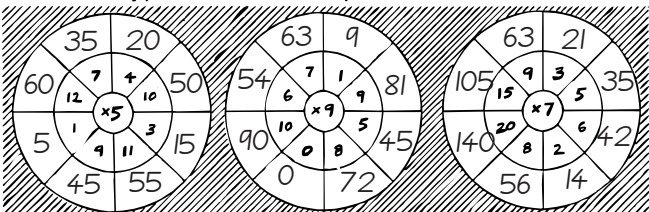
Fill out the multiplication squares

X	7	4	3	2
6	42	24	18	12
2	14	8	6	4
8	56	32	24	16
1	7	4	3	2

X	9	5	4	2
3	27	15	12	6
7	63	35	28	14
8	72	40	32	16
5	45	25	20	10

X	5	7	9
12	60	84	108
15	75	105	135
10	50	70	90

Multiply each of the centre numbers by the numbers around the circle.



## MUCH MUCH MORE... MULTIPLICATION!

$2 \times 8 = 16$   $7 \times 1 = 7$   $1 \times 1 = 1$   $5 \times 9 = 45$   $3 \times 3 = 9$   $9 \times 9 = 81$   
 $7 \times 5 = 35$   $4 \times 7 = 28$   $1 \times 8 = 8$   $11 \times 5 = 55$   $8 \times 2 = 16$   $7 \times 9 = 63$   
 $4 \times 2 = 8$   $8 \times 8 = 64$   $8 \times 9 = 72$   $7 \times 10 = 70$   $6 \times 6 = 36$   $11 \times 11 = 121$   
 $3 \times 9 = 27$   $6 \times 2 = 12$   $9 \times 3 = 27$   $3 \times 11 = 33$   $10 \times 4 = 40$   $10 \times 2 = 20$   
 $5 \times 6 = 30$   $3 \times 3 = 9$   $8 \times 7 = 56$   $4 \times 4 = 16$   $3 \times 1 = 3$   $6 \times 12 = 72$   
 $8 \times 5 = 40$   $10 \times 0 = 0$   $6 \times 1 = 6$   $12 \times 12 = 144$   $9 \times 8 = 72$   $8 \times 3 = 24$

Use your multiplication skills to fill in the spaces.

$6 \times \boxed{4} = 3 \times 8$      $6 \times \boxed{6} = 4 \times 9$      $4 \times \boxed{9} = 3 \times 12$   
 $\boxed{2} \times 12 = 4 \times 6$      $\boxed{12} \times 3 = 9 \times 4$      $10 \times 8 = 20 \times \boxed{4}$   
 $5 \times 6 = \boxed{10} \times 3$      $10 \times \boxed{4} = 8 \times 5$      $\boxed{10} \times 2 = 5 \times 4$   
 $8 \times \boxed{8} = 64 \times 1$      $42 \times 2 = \boxed{12} \times 7$      $4 \times \boxed{4} = 16 \times 1$

### MULTIPLICATION SQUARES

X	4	3	12
5	20	15	60
20	60	120	240

X	4	1	4
6	24	6	24
24	24	24	24

X	10	5	50
6	60	30	300
60	40	2400	

Put each letter above the correct answer below.

WHAT DO YOU GET WHEN YOU CROSS A PARROT WITH A CENTIPEDE?

"A WALKIE TALKIE!"

84    255    427    98    329    268    51    92    36    75    128    215    48

# DIVISION

WARNING - DIVISION CAN BE ADDICTIVE... BENEFICIAL... FUN...

## LEVEL 1

$16 \div 4 = 4$     $45 \div 5 = 9$     $16 \div 2 = 8$     $28 \div 4 = 7$     $32 \div 8 = 4$   
 $55 \div 5 = 11$     $63 \div 9 = 7$     $56 \div 7 = 8$     $21 \div 3 = 7$     $14 \div 2 = 7$   
 $60 \div 10 = 6$     $81 \div 9 = 9$     $25 \div 5 = 5$     $20 \div 2 = 10$     $6 \div 6 = 1$   
 $54 \div 6 = 9$     $10 \div 2 = 5$     $20 \div 4 = 5$     $63 \div 7 = 9$     $20 \div 10 = 2$   
 $64 \div 8 = 8$     $36 \div 12 = 3$     $44 \div 11 = 4$     $42 \div 7 = 6$     $27 \div 3 = 9$   
 $80 \div 10 = 8$     $35 \div 5 = 7$     $12 \div 4 = 3$     $28 \div 2 = 14$     $63 \div 7 = 9$

## LEVEL 2

$303 \div 3 = 101$     $624 \div 6 = 104$     $432 \div 4 = 108$     $981 \div 9 = 109$   
 $672 \div 6 = 112$     $615 \div 5 = 123$     $330 \div 6 = 55$     $212 \div 4 = 53$   
 $916 \div 4 = 229$     $627 \div 3 = 209$     $432 \div 8 = 54$     $426 \div 2 = 213$   
 $225 \div 5 = 45$     $144 \div 4 = 36$     $616 \div 4 = 154$     $875 \div 7 = 125$

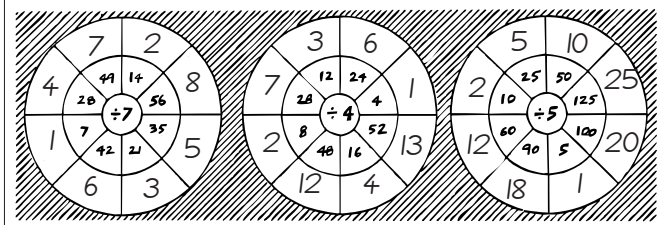
## LEVEL 3

- Divide 768 by 3. 256
- What is 420 divided by 7? 60
- Russell worked for 12 hours and made \$72. How much did he make per hour? \$6
- Mrs Armstrong's class of 30 students raised \$240 towards their class trip. How much did each student make? \$8
- There are 200 students and 10 teachers. If you had to give each teacher an equal amount of students, how many would there be per class? 20 students

Divide each number by 10										
60	40	20	10	50	100	1600	2000	10000	12680	157800
6	4	2	1	5	10	160	200	1000	1268	15780

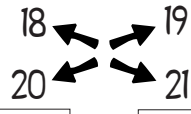
Divide each number by 100										
100	200	2500	5000	200	3600	1500	53000	41600	271000	19000000
1	20	25	50	2	36	15	530	416	2710	190000

Divide each number by the one in the centre of each circle.



WRITE THESE EQUATIONS AS A DIVISION SENTENCE! -EXAMPLE B

$12 + 12 + 12 = 36$	$36 \div 3 = 12$
$7 + 7 = 14$	$14 \div 2 = 7$
$9 + 9 + 9 = 27$	$27 \div 3 = 9$
$5 \times 3 = 15$	$15 \div 3 = 5$ or $15 \div 5 = 3$
$4 \times 8 = 32$	$32 \div 4 = 8$ or $32 \div 8 = 4$
$14 + 2 = 16$	$16 \div 2 = 8$
$15 + 5 = 20$	$20 \div 5 = 4$



## -DO-DA-CRAZY DIVISION!

$48 \div 6 = 8$	$84 \div 12 = 7$	$100 \div 25 = 4$
$6 \div 2 = 3$	$21 \div 3 = 7$	$10 \div 5 = 2$
$8 \div 4 = 2$	$4 \div 4 = 1$	$10 \div 5 = 2$

Dad shared 12 apples equally among his 4 children. How many apples did each child get? 3

Mum shared 80c between 4 children. How much did each child get? 20c

Uncle Ben shared 27 chocolates between 4 children. How many did each child get? 6  
How many were left for Uncle Ben? 3

## -DIVISION SQUARES!

$\div 20$	$\div 40$	$\div 60$	$\div 80$	$\div 12$	$\div 24$	$\div 36$	$\div 48$	$\div 50$	$\div 100$	$\div 200$	$\div 500$			
2	10	20	30	40	2	6	12	18	24	10	5	10	20	50
4	5	10	15	20	3	4	8	12	16	5	10	20	40	100
5	4	8	12	16	4	3	6	9	12	2	25	50	100	250
10	2	4	6	8	6	2	4	6	8	25	2	4	8	20

Find a place for each card. (You can only use each card once.)

- 2 3 4 5 6 7 8 9 10

$16 \div 2 = 8$     $49 \div 7 = 7$     $100 \div 10 = 10$     $25 \div 5 = 5$   
 $36 \div 9 = 4$     $16 \div 2 = 8$     $42 \div 6 = 7$     $27 \div 3 = 9$   
 $54 \div 9 = 6$

## DIVISION REVISION

$36 \div 6 = 6$	$70 \div 10 = 7$	$30 \div 5 = 6$	$44 \div 2 = 22$	$72 \div 6 = 12$
$45 \div 9 = 5$	$36 \div 9 = 4$	$108 \div 12 = 9$	$45 \div 3 = 15$	$60 \div 10 = 6$
$56 \div 8 = 7$	$70 \div 7 = 10$	$56 \div 7 = 8$	$16 \div 4 = 4$	$72 \div 9 = 8$
$32 \div 4 = 8$	$48 \div 8 = 6$	$12 \div 4 = 3$	$82 \div 2 = 41$	$21 \div 7 = 3$

Sometimes in division something is left over.

Examples.  $8 \div 5 = 1 \frac{3}{5}$     $12 \div 5 = 2 \frac{2}{5}$     $19 \div 9 = 2 \frac{1}{9}$

Now try these.

$5 \div 2 = 2 \frac{1}{2}$	$7 \div 2 = 3 \frac{1}{2}$	$18 \div 5 = 3 \frac{3}{5}$	$13 \div 6 = 2 \frac{1}{6}$	$21 \div 5 = 4 \frac{1}{5}$
$13 \div 7 = 1 \frac{6}{7}$	$13 \div 2 = 6 \frac{1}{2}$	$13 \div 3 = 4 \frac{1}{3}$	$12 \div 5 = 2 \frac{2}{5}$	$27 \div 8 = 3 \frac{3}{8}$
$9 \div 4 = 2 \frac{1}{4}$	$8 \div 5 = 1 \frac{3}{5}$	$7 \div 3 = 2 \frac{1}{3}$	$11 \div 3 = 3 \frac{2}{3}$	$3 \div 2 = 1 \frac{1}{2}$
$8 \div 3 = 2 \frac{2}{3}$	$23 \div 10 = 2 \frac{3}{10}$	$17 \div 7 = 2 \frac{3}{7}$	$13 \div 8 = 1 \frac{5}{8}$	$7 \div 4 = 1 \frac{3}{4}$

You might need a calculator.

$150 \div 25 = 6$	$225 \div 15 = 15$	$405 \div 15 = 27$	$742 \div 14 = 53$
$169 \div 13 = 13$	$510 \div 34 = 15$	$204 \div 12 = 17$	$396 \div 33 = 12$
$560 \div 28 = 20$	$323 \div 19 = 17$	$594 \div 18 = 33$	$564 \div 12 = 47$
$368 \div 16 = 23$	$594 \div 27 = 22$	$952 \div 34 = 28$	$837 \div 31 = 27$
$228 \div 19 = 12$	$351 \div 13 = 27$	$624 \div 13 = 48$	$376 \div 47 = 8$

# MATHEMATICAL SENTENCES

WRITE A NUMBER SENTENCE FOR EACH STATEMENT.  
(THE FIRST ONE IS DONE FOR YOU!)

• The sum of 9 and 8 is 17.	$9 + 8 = 17$
• The difference between 24 and 16 is 8.	$24 - 16 = 8$
• 45 is greater than 22.	$45 > 22$
• The product of 6 and 4 is 24.	$6 \times 4 = 24$
• The sum of 8 and 12 is less than 30.	$8 + 12 < 30$
• 8 from 13 is 5	$13 - 8 = 5$
• 12 and 9 is 21	$12 + 9 = 21$
• Add 7 to 3 and get 10	$7 + 3 = 10$
• 5 is less than 24	$5 < 24$
• Subtract 3 from 27 to get 24	$27 - 3 = 24$
• The product of 8 and 5 is equal to the sum of 36 and 4	$8 \times 5 = 36 + 4$
• 16 divided by 8 is 2	$16 \div 8 = 2$
• 27 is greater than 16	$27 > 16$
• Multiply six eights and get forty eight.	$6 \times 8 = 48$

# HOW MANY DIFFERENT NUMBERS CAN YOU FIND, USING THE NUMBER 3, THREE TIMES, AND ANY MATHEMATICAL SIGN?

EXAMPLE

- 1  $3 + 3 + 3 = 9$
- 2  $3 + (3 + 3) = 9$
- 3  $3 + (3 \times 3) = 12$

NOW FIND 4 MORE!

- 4  $3 + 3 \times 3 = 12$
- 5  $(3 + 3) \times 3 = 18$
- 6  $3 \times 3 \div 3 = 3$
- 7  $3 + 3 \div 3 = 4$

Many more examples possible

Complete these sentences so that they all equal 12.

$$4 + \boxed{8} = 12 \quad 2 \times \boxed{6} = 12 \quad 16 - \boxed{4} = 12$$

$$36 \div \boxed{3} = 12 \quad 21 - \boxed{9} = 12 \quad 11 + \boxed{1} = 12$$

$$\frac{1}{2} \text{ of } \boxed{24} = 12 \quad 3 \times \boxed{4} = 12 \quad 24 \div \boxed{2} = 12$$

Show 6 more maths sentences that equal 12.

- 1  $1 \times 12 = 12$
- 2  $48 \div 4 = 12$
- 3  $10 + 2 = 12$
- 4  $\frac{1}{3} \text{ of } 36 = 12$
- 5  $19 - 7 = 12$
- 6  $30 - 6 \times 3 = 12$

Many more examples possible

Show three interesting ways of writing the numbers below.  
The first one is done for you.

	15	20	36	100
1	$(3+3)+(3 \times 3)$	Many examples are possible. Get somebody to check your work.		
2	$(3 \times 3) + (3 \times 3) - 3$			
3	$(5 \times 5) - (5 + 5)$			

22 ← → 23  
24 ← → 25

# MORE... NUMBER SENTENCES!

Fill in the spaces with the correct number.

$$16 + 4 = \underline{12} + 8 \quad 3 \times 2 \times \underline{5} = 30 \quad (5 \times 4) + 3 = \underline{23}$$

$$(6 \times 6) + \underline{4} = 40 \quad 19 + 7 = 33 - \underline{7} \quad 42 \div \underline{7} = 9 - 3$$

$$100 - 20 = 40 \times \underline{2} \quad 10 + 10 = \underline{2} \times 10 \quad (8 \times 2) + 6 = \underline{22}$$

$$(6 \times \underline{5}) + 10 = 40 \quad (\underline{5} \times 10) - 5 = 45 \quad 8 \times (2 + 6) = \underline{64}$$

$$4 \times \underline{2} \times 9 = 72 \quad (12 \div 3) \div \underline{4} = 1 \quad 12 \div (6 \div 2) = \underline{4}$$

Now give the correct sign. (+ - × ÷)

$$6 \text{ (X) } 4 = 24 \quad 12 \text{ (÷) } 3 = 4 \quad 16 \text{ (÷) } 4 = 2 \times 2$$

$$(26 - 5) = 7 \text{ (X) } 3 \quad 8 \text{ (+) } 2 = 5 + 5 \quad (3 \times 5) \text{ (-) } 6 = 9$$

$$5 \text{ (+) } (3 + 5) = 13 \quad 10 \text{ (-) } (4 \times 2) = 2 \quad 36 \text{ (÷) } 4 = 7 \text{ (+) } 2$$

Complete the sentences by using >= or < signs

$$63 \text{ (=) } 9 \times 7 \quad 16 + 5 \text{ (<) } 27 \quad 9 \times 9 \text{ (<) } 100$$

$$50 \text{ (>) } 43 + 4 \quad 27 + 5 \text{ (=) } 32 \quad 100 - 40 \text{ (=) } 60$$

$$36 \text{ (=) } 9 \times 4 \quad 2 \times 13 \text{ (<) } 27 \quad 15 \times 5 \text{ (>) } 30$$

$$36 \div 4 \text{ (>) } 20 - 12 \quad 17 + 2 \text{ (>) } 6 \times 3 \quad 14 - 8 \text{ (<) } 6 + 6$$

$$15 \div 5 \text{ (<) } 24 + 6 \quad 15 \times 0 \text{ (<) } 3 \times 2 \quad 10 \times 90 \text{ (=) } 90 \times 10$$

# WHY DO ELEPHANTS HAVE SO MANY WRINKLES?

To find the answer, calculate the missing number in each problem, then put the letter above that number in the code below.

N R A Y D V E	$9 + 9 + 9 + 9 = 4 \times 9$	T O U H I	$6 + 6 + 6 = 9 \times 2$
	$5 \times 12 = 6 \times 10$		$16 + \underline{2} = 48 \div 6$
	$(8 + 6) \div 2 = \underline{7}$		$5 \times 2 \times \underline{5} = 30$
	$(48 + 6) \div \underline{6} = 9$		$(8 \times 6) + \underline{8} = 56$
	$19 + 8 = 30 - \underline{3}$		$\underline{12} \times 2 - 12 + 12$
	$3 \times 9 = 16 + \underline{11}$		



"HAVE YOU EVER TRIED  
TO IRON ONE?"

I	$3 \times (6 - 1) = 15$	H	$(8 + 3) \times 6 = 66$	A	$(5 - 2) \times 3 = 9$
P	$10 \times (6 - 4) = 20$	T	$3 \times (5 - 3) = 6$	Z	$4 \times (2 + 1) = 12$
V	$8 \times (1 \times 5) = 40$	S	$(4 - 4) \times 5 = 0$	W	$4 \times (5 + 6) = 44$
L	$4 \times (10 - 2) = 32$	W	$(10 - 6) \times 6 = 24$	E	$(3 + 1) \times 4 = 16$
R	$5 \times (6 + 4) = 50$	D	$6 \times (12 - 7) = 30$	N	$(2 + 3) \times 2 = 10$
O	$(5 - 4) \times 3 = 3$	L	$3 \times (10 + 2) = 36$		



NEW ZEALAND  
10 16 44 12 16 9 36 9 10 30  
WINS THE  
24 15 10 0 6 66 16  
WORLD CUP!  
24 3 30 36 30 32 40 20

# - CRAZY CROSS-NUMBER.

Add the missing numbers.

- Calculate the missing number in each problem, then put the letter above that number in the code below.

N R A L S C E	$36 - 24 \div 6 = 32$	T O I H M	$12 + 12 \div 3 = 16$
	$5 + 7 \times 2 = 19$		$26 - 4 \div 4 = 25$
	$42 - 6 \times 3 = 24$		$7 + 9 \times 6 = 61$
	$27 + 9 \div 3 = 30$		$18 - 8 \div 2 = 14$
	$12 + 18 \div 6 = 15$		$4 + 7 \times 2 = 18$
	$20 - 12 \times 1 = 8$		
	$5 + 2 \times 4 = 13$		

"MATHEMATICIANS ARE  
REAL COOL CATS!"

Complete this table for coins making up a dollar.

Coin	Number to make \$1	Fraction of a \$
50c	2	$\frac{1}{2}$
20c	5	$\frac{1}{5}$
10c	10	$\frac{1}{10}$
5c	20	$\frac{1}{20}$

26 ← → 27  
28 ← → 29

Fill in the boxes to complete the sums.

$$7 + \boxed{5} = 12$$

$$8 + \boxed{14} = 22$$

$$\boxed{9} + 9 = 18$$

$$\boxed{9} + 6 = 15$$

$$3 + 29 = \boxed{32}$$

$$4 + 18 = \boxed{22}$$

$$6 + \boxed{17} = 23$$

$$\boxed{26} + 12 = 38$$

$$34 + 29 = \boxed{63}$$

Complete these sentences by writing < or > into each  $\bigcirc$ .

$$6 + 5 \bigcirc 9$$

$$12 + 7 \bigcirc 25$$

$$8 + 4 \bigcirc 9 + 2$$

$$15 + 2 \bigcirc 10 + 7$$

$$18 + 12 \bigcirc 10 + 10$$

$$8 + 2 \bigcirc 82$$

$$9 \bigcirc 4 + 7$$

$$5 \bigcirc 2 + 1$$

Fill in the boxes to complete the sums.

$$17 - \boxed{8} = 9 \quad \boxed{11} - 6 = 5$$

$$12 - \boxed{9} = 3 \quad \boxed{9} - 7 = 2$$

$$\boxed{10} - 8 = 2 \quad \boxed{8} - 5 = 3$$

$$\boxed{12} - 5 = 7 \quad \boxed{12} - 4 = 8$$

$$22 - 8 = \boxed{14}$$

$$15 - 6 = \boxed{9}$$

$$24 - \boxed{18} = 6$$

$$23 - \boxed{18} = 5$$

$$19 - \boxed{18} = 1$$

Complete these sentences by writing < or > into each  $\bigcirc$ .

$$16 - 8 \bigcirc 5$$

$$12 - 6 \bigcirc 3$$

$$11 - 4 \bigcirc 7$$

$$10 - 8 \bigcirc 8$$

$$15 - 12 \bigcirc 6$$

$$18 - 12 \bigcirc 6$$

$$13 - 7 \bigcirc 1$$

- COMPLETE THE SQUARES BY ADDING THE ROWS AND COLUMNS!?

3	7	10
8	4	12
11	11	22

12	16	28
9	5	14
21	21	42

24	20	44
16	15	31
40	35	75

## CRAZY CROSS-NUMBER

ACROSS

DOWN

- Increase 10 by 6.
- The sum of 6 and 3.
- Russell saves \$25. Beverly saves \$11. Graeme saves \$2. How much is saved altogether?
- Sandy has 27 music cassettes. Jean has 32 music cassettes. Audrey has 25 music cassettes. How many cassettes altogether?
- What is 6 more than 16.

1	6	2
9	3	8
8	4	
2	2	9

## CRAZY CROSS-NUMBER

ACROSS

DOWN

- Take 12 away from 20.
- The difference between 6 and 20.
- Beverly has \$100. She spends \$0. How much does she have left?
- Take 8 away from 20.
- Decrease 30 by 1.
- The difference between 40 and 6.
- $33 - 16$
- $100 - 10$
- $25 - 10$
- $30 - 8$
- $32 - 13$
- $34 - 20$

8	1	4	9
7	5	0	
1	2		
5	1	2	1
2	9	3	4

**SOLVE THESE PUZZLERS**

How much for 3 stamps? **\$1.35**

This spider has 8 legs. How many legs do 8 spiders have? **64**

1 apple costs 25¢. How much for 4 apples? **\$1**

1 Easter egg costs 20¢. How much for 3 Easter eggs? **60¢**

There are 7 days in a week. How many days in 4 weeks? **28**

**-ORDERING YOUR MULTIPLICATION**

FIRST OF ALL TRY THESE! (REMEMBER BRACKETS FIRST!)

$(6 \times 2) \times 3 = 36$        $6 \times (2 \times 3) = 36$   
 $(8 \times 3) \times 2 = 48$        $8 \times (3 \times 2) = 48$   
 $(6 \times 4) \times 3 = 72$        $6 \times (4 \times 3) = 72$   
 $(10 \times 3) \times 8 = 240$        $10 \times (3 \times 8) = 240$   
 $(8 \times 6) \times 2 = 96$        $8 \times (6 \times 2) = 96$

Which column was the easiest to work out? Column 2 should be easier

When you change the order in multiplication does the answer change? No

**-IT'S TIME TO... -BEAT THE CALCULATOR!**

DIVIDE INTO 2 GROUPS. THE FIRST GROUP USES THE CALCULATOR! THE OTHER GROUP DOES THE QUESTIONS MENTALLY. WHO WILL FINISH FIRST?

$\begin{array}{r} 23 \\ \times 3 \\ \hline 69 \end{array}$	$\begin{array}{r} 16 \\ \times 5 \\ \hline 80 \end{array}$	$\begin{array}{r} 14 \\ \times 8 \\ \hline 112 \end{array}$	$\begin{array}{r} 26 \\ \times 4 \\ \hline 104 \end{array}$	$\begin{array}{r} 41 \\ \times 7 \\ \hline 287 \end{array}$	$\begin{array}{r} 54 \\ \times 6 \\ \hline 324 \end{array}$
$\begin{array}{r} 17 \\ \times 2 \\ \hline 34 \end{array}$	$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \end{array}$	$\begin{array}{r} 15 \\ \times 7 \\ \hline 105 \end{array}$	$\begin{array}{r} 11 \\ \times 8 \\ \hline 88 \end{array}$	$\begin{array}{r} 13 \\ \times 7 \\ \hline 91 \end{array}$	$\begin{array}{r} 19 \\ \times 1 \\ \hline 19 \end{array}$

Which group finished first? \_\_\_\_\_

Groups now swap over and try again.

$\begin{array}{r} 90 \\ \times 3 \\ \hline 270 \end{array}$	$\begin{array}{r} 78 \\ \times 5 \\ \hline 390 \end{array}$	$\begin{array}{r} 27 \\ \times 6 \\ \hline 162 \end{array}$	$\begin{array}{r} 56 \\ \times 8 \\ \hline 448 \end{array}$	$\begin{array}{r} 62 \\ \times 2 \\ \hline 124 \end{array}$	$\begin{array}{r} 15 \\ \times 7 \\ \hline 105 \end{array}$
$\begin{array}{r} 17 \\ \times 9 \\ \hline 153 \end{array}$	$\begin{array}{r} 78 \\ \times 4 \\ \hline 312 \end{array}$	$\begin{array}{r} 22 \\ \times 3 \\ \hline 66 \end{array}$	$\begin{array}{r} 51 \\ \times 6 \\ \hline 306 \end{array}$	$\begin{array}{r} 23 \\ \times 7 \\ \hline 161 \end{array}$	$\begin{array}{r} 15 \\ \times 2 \\ \hline 30 \end{array}$

Which group made the most mistakes? \_\_\_\_\_

**-NOW TRY THESE!**

**-CIRCLE THE EASIEST ONE TO ANSWER.**

$25 \times (12 \times 4) = 1200$        $(25 \times 12) \times 4 = 1200$   
 $(4 \times 25) \times 12 = 1200$        $(4 \times 12) \times 25 = 1200$

A short way of multiplying is to group together certain numbers.

$5 \times 16 \times 2 = 10 \times 16 = 160$        $8 \times 20 \times 5 = 8 \times 100 = 800$

**-NOW YOU TRY THESE!**

$2 \times 16 \times 5 = 160$        $5 \times 22 \times 2 = 220$        $55 \times 50 \times 2 = 5500$   
 $5 \times 2 \times 27 = 270$        $2 \times 50 \times 4 = 400$        $5 \times 24 \times 2 = 240$   
 $4 \times 29 \times 25 = 2900$        $25 \times 80 \times 4 = 8000$        $20 \times 16 \times 5 = 1600$   
 $50 \times 18 \times 2 = 1800$        $5 \times 99 \times 2 = 990$        $17 \times 5 \times 20 = 1700$   
 $2 \times 67 \times 5 = 670$        $4 \times 112 \times 25 = 11200$        $500 \times 13 \times 2 = 13000$   
 $90 \times 10 \times 10 = 9000$        $2 \times 67 \times 5 = 670$        $14 \times 2 \times 500 = 14000$

**CROSS-NUMBER**

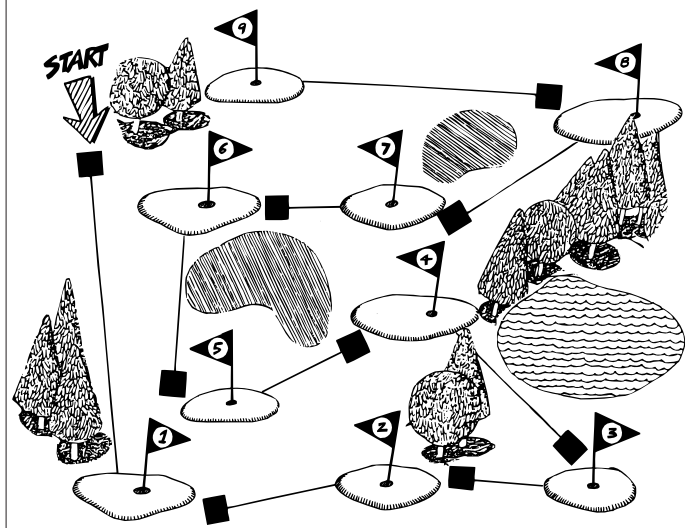
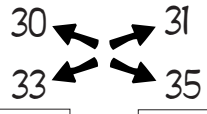
1	6	2
2	4	5
2	6	
7	2	4
8		5
		4

**ACROSS**

- The product of 8 and 2
- Multiply 5 by 9
- 13 times 2
- Eggs are sold in cartons containing 12 eggs. How many eggs in 6 cartons?
- Tennis balls are sold in half dozen packets. How many balls in 9 packets?

**DOWN**

- $4 \times 3$
- $5 \times 5$
- $23 \times 2$
- $1 \times 2 \times 11$
- $2 \times 13 \times 3$
- $2 \times 2 \times 11$



HOLE	DISTANCE	** CLUB & STRENGTH **	STROKES
1	44m	C5S7 + C3S5	2
2	25m	C5S3 + C5S3 - C5S1	3
3	23m	C3S7 + C2S1	2
4	27m	C3S7 + C2S5	2
5	29m	C5S7 - C2S3	2
6	35m	C5S7	1
7	18m	C5S3 + C3S1	2
8	46m	C5S7 + C5S1 - C2S3	3
9	56m	C5S7 - C3S7	2
TOTAL			19

\*\* EXAMPLE ANSWERS ONLY \*\*

**SQUARES**  $5^2$  reads "five squared" Mathematically it means  $5 \times 5$ , which equals 25

Find the squares of these numbers

$2^2 = 4$	$4^2 = 16$	$7^2 = 49$	$3^2 = 9$
$5^2 = 25$	$8^2 = 64$	$6^2 = 36$	$1^2 = 1$
$7^2 = 49$	$10^2 = 100$	$13^2 = 169$	$15^2 = 225$

Now answer the questions and write each answer in the correct square. If you have all the answers correct you will have a MAGIC square!

1. $3^2 - 3 = 6$	6. $4^2 - 13 = 3$	<table border="1"> <tr><td>6</td><td>1</td><td>8</td></tr> <tr><td>7</td><td>5</td><td>3</td></tr> <tr><td>2</td><td>9</td><td>4</td></tr> </table>	6	1	8	7	5	3	2	9	4
6	1		8								
7	5		3								
2	9		4								
2. $1^2 = 1$	7. $6^2 \div 18 = 2$										
3. $2^2 + 2^2 = 8$	8. $5^2 - 4^2 = 9$										
4. $1^2 + 6 = 7$	9. $2^2 \div 1^2 = 4$										
5. $30 - 5^2 = 5$											

You use squares to find the square root of a number.

$\sqrt{25} = 5$  because  $5 \times 5 = 25$

Find the square root of these numbers.

$\sqrt{49} = 7$	$\sqrt{16} = 4$	$\sqrt{25} = 5$	$\sqrt{36} = 6$
$\sqrt{64} = 8$	$\sqrt{44} = 12$	$\sqrt{9} = 3$	$\sqrt{1} = 1$
$\sqrt{81} = 9$	$\sqrt{4} = 2$	$\sqrt{100} = 10$	$\sqrt{169} = 13$

Answer each question and write the answer in the correct square. You should have another magic square!

$1/\sqrt{36} + \sqrt{16}$	$10$	$6\sqrt{81} + 2^2$	$13$	$11$	$5^2 - \sqrt{81}$	$16$		
$2/\sqrt{25} + 10$	$15$	$7$	$5^2 - \sqrt{64}$	$17$	$12\sqrt{144} - \sqrt{9}$	$9$		
$3$	$6^2 - 5^2$	$11$	$8$	$\sqrt{64}$	$8$	$13/\sqrt{36} + 1$	$7$	
$4$	$\sqrt{121} + \sqrt{121}$	$22$	$9$	$\sqrt{49} \times 3$	$21$	$14/\sqrt{100} + 2^2 + 4$	$18$	
$5$	$\sqrt{25} \times 4$	$20$	$10$	$4^2 - 2^2$	$12$	$15$	$8^2 - 7^2 - 1^2$	$14$

10	5	11	22
20	13	17	8
21	12	16	9
7	18	14	19



# THE MIGHTY MATHS BLACKBELT

## ADDITION 1



Add 3 to each number +3

3	5	8	1	9	4	10	2	15	7
6	8	11	4	12	7	13	5	18	10

Add 8 to each number +8

1	5	6	9	2	0	8	3	13	4
9	13	14	17	10	8	16	11	21	12

Add 4 to each number +4

3	1	5	9	12	7	0	4	6	2
7	5	9	13	16	11	4	8	10	6

Add 6 to each number +6

6	2	0	9	1	14	5	3	7	4
12	8	6	15	7	20	11	9	13	10

Add 9 to each number +9

6	7	1	3	9	20	2	5	0	4
15	16	10	12	18	29	11	14	9	13

# THE MIGHTY MATHS BLACKBELT

## ADDITION 2

Add 7 to each number +7

14	19	17	15	12	10	9	13	16	23
21	26	24	22	19	17	16	20	23	30

Add 12 to each number +12

12	9	8	11	14	3	7	10	6	0
24	21	20	23	26	15	19	22	18	12

Add 3 to each number +3

15	19	18	11	9	4	10	2	15	17
18	22	21	14	12	7	13	5	18	20

Add 5 to each number +5

22	10	17	15	19	14	11	13	18	0
27	15	22	20	24	19	16	18	23	5

Add 8 to each number +8

11	15	16	19	12	0	18	13	14	32
19	23	24	27	20	8	26	21	22	40

Add 4 to each number +4

13	11	15	19	22	17	10	14	16	12
17	15	19	23	26	21	14	18	20	16

36 ↔ 37  
38 ↔ 39

# THE MIGHTY MATHS BLACKBELT

## SUBTRACTION 1

Subtract 2 from each number -2

16	12	10	19	11	24	15	13	17	14
14	10	8	17	9	22	13	11	15	12

Subtract 5 from each number -5

16	17	11	13	19	22	12	15	10	14
11	12	6	8	14	17	7	10	5	9

Subtract 3 from each number -3

3	5	8	10	9	4	10	12	15	7
0	2	5	7	6	1	7	9	12	4

Subtract 6 from each number -6

12	10	9	6	7	14	11	23	13	20
6	4	3	0	1	8	5	17	7	14

Subtract 4 from each number -4

11	5	6	9	12	10	8	15	13	4
7	1	2	5	8	6	4	11	9	0

Subtract 7 from each number -7

13	11	15	9	12	7	10	14	16	8
6	4	8	2	5	0	3	7	9	1

# THE MIGHTY MATHS BLACKBELT

## SUBTRACTION 2

Subtract 6 from each number -6

6	12	10	19	11	14	15	13	7	8
0	6	4	13	5	8	9	7	1	2

Subtract 9 from each number -9

16	17	11	13	9	20	12	15	10	14
7	8	2	4	0	11	3	6	1	5

Subtract 7 from each number -7

14	19	17	15	12	10	9	13	16	23
7	12	10	8	5	3	2	6	9	16

Subtract 12 from each number -12

12	19	18	13	14	23	17	20	16	15
0	7	6	1	2	11	5	8	4	3

Subtract 3 from each number -3

15	19	18	11	9	4	10	12	15	17
12	16	15	8	6	1	7	9	12	14

Subtract 5 from each number -5

22	10	17	15	17	14	11	13	18	10
17	5	12	10	12	9	6	8	13	5

**MULTIPLICATION 1**

Multiply each number by 4  $\times 4$

1	5	6	9	2	0	8	3	4	7
4	20	24	36	8	0	32	12	16	28

Multiply each number by 6  $\times 6$

3	1	5	9	2	7	10	4	6	8
18	6	30	54	12	42	60	24	36	48

Multiply each number by 3  $\times 3$

6	2	0	9	1	4	5	3	7	12
18	6	0	27	3	12	15	9	21	36

Multiply each number by 5  $\times 5$

6	7	1	3	9	2	8	5	0	4
30	35	5	15	45	10	40	25	0	20

Multiply each number by 7  $\times 7$

3	5	8	1	9	4	10	2	6	7
21	35	56	7	63	28	70	14	42	49

Multiply each number by 2  $\times 2$

2	10	9	5	7	4	1	3	13	0
4	20	18	10	14	8	2	6	26	0

**MULTIPLICATION 2**

Multiply each number by 8  $\times 8$

1	5	6	9	2	0	8	3	13	4
8	40	48	72	16	0	64	24	104	32

Multiply each number by 6  $\times 6$

3	1	5	9	12	7	0	4	6	2
18	6	30	54	72	42	0	24	36	12

Multiply each number by 4  $\times 4$

6	2	0	9	1	14	5	3	7	4
24	8	0	36	4	56	20	12	28	16

Multiply each number by 7  $\times 7$

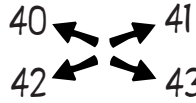
6	7	1	3	9	2	12	5	0	4
42	49	7	21	63	14	84	35	0	28

Multiply each number by 5  $\times 5$

3	5	8	1	9	4	10	2	12	7
15	25	40	5	45	20	50	10	60	35

Multiply each number by 3  $\times 3$

2	10	9	5	7	4	1	3	13	0
6	30	27	15	21	12	3	9	39	0



**DIVISION 1**

Divide each number by 2  $\div 2$

14	18	10	6	12	20	36	8	16	22
7	9	5	3	6	10	18	4	8	11

Divide each number by 8  $\div 8$

16	88	8	24	40	32	64	48	80	96
2	11	1	3	5	4	8	6	10	12

Divide each number by 3  $\div 3$

15	39	18	12	9	24	33	21	30	27
5	13	6	4	3	8	11	7	10	9

Divide each number by 5  $\div 5$

20	10	15	35	50	5	45	55	30	60
4	2	3	7	10	1	9	11	6	12

Divide each number by 8  $\div 8$

16	8	40	24	72	48	88	32	80	56
2	1	5	3	9	6	11	4	10	7

Divide each number by 4  $\div 4$

40	4	24	36	16	44	8	28	32	20
10	1	6	9	4	11	2	7	8	5

**DIVISION 2**

Divide each number by 3  $\div 3$

3	9	27	12	15	6	18	24	21	30
1	3	9	4	5	2	6	8	7	10

Divide each number by 5  $\div 5$

20	10	15	25	5	40	50	30	45	55
4	2	3	5	1	8	10	6	9	11

Divide each number by 7  $\div 7$

14	56	7	28	21	70	49	35	42	84
2	8	1	4	3	10	7	5	6	12

Divide each number by 4  $\div 4$

32	12	16	4	20	8	24	36	40	44
8	3	4	1	5	2	6	9	10	11

Divide each number by 6  $\div 6$

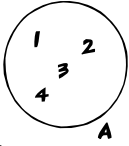
6	12	24	36	18	42	66	30	48	54
1	2	4	6	3	7	11	5	8	9

Divide each number by 9  $\div 9$

90	9	27	36	99	18	45	72	54	63
10	1	3	4	11	2	5	8	6	7

# SETS

The members of a set are called **ELEMENTS**. They are written between braces { }

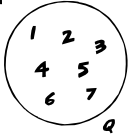


Set A has the elements 1, 2, 3, 4

$$A = \{1, 2, 3, 4\}$$

The number 4 is an element of set A  $4 \in A$

Write TRUE or FALSE for set Q



$5 \in Q$  TRUE  $8 \in Q$  FALSE  $9 \in Q$  FALSE

$10 \in Q$  FALSE  $0 \in Q$  FALSE  $7 \in Q$  TRUE

$4 \in Q$  TRUE  $1 \in Q$  TRUE  $2 \in Q$  TRUE

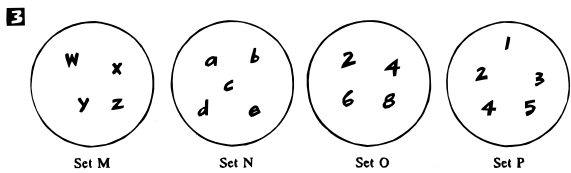
2 Make these statements shorter by using  $\in$

7 is an element of Q  $7 \in Q$

4 is an element of Q  $4 \in Q$

6 is an element of Q  $6 \in Q$

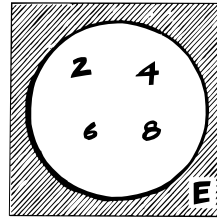
1 is an element of Q  $1 \in Q$



Write all these sets using braces

$$M = \{w, x, y, z\} \quad P = \{1, 2, 3, 4, 5\}$$

$$N = \{a, b, c, d, e\} \quad O = \{2, 4, 6, 8\}$$



E is a set of even numbers between 0 & 10

$$E = \{2, 4, 6, 8\}$$

True or False?

$20 \in E$  FALSE

$8 \in E$  TRUE

$7 \in E$  FALSE

O is a set of counting numbers less than 7

$$O = \{1, 2, 3, 4, 5, 6\}$$

X is a set of counting numbers between 15 and 25

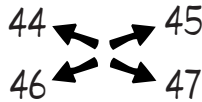
$$X = \{16, 17, 18, 19, 20, 21, 22, 23, 24\}$$

Describe these sets in words. "Less than" and "Between" are useful words to remember when describing sets.

- A = {1, 2, 3, 4, 5, 6} Counting numbers less than 7
- B = {2, 4, 6, 8, 10} Even numbers between 1 and 11
- C = {15, 16, 17, 18} Counting numbers between 14 and 19
- D = {22, 24, 26, 28} Even numbers between 21 and 29
- E = {14, 15, 16, 17, 18} Counting numbers between 13 and 19
- F = {5, 10, 15, 20, 25} Multiples of 5 less than 30

\*\*Example answers only. Others are possible.\*\*  
Sets don't have to be just numbers! Describe these sets

- H = {Colin, Brett, Conrad, Jamie, Ben} Five common male names
- I = {Mary, Joanne, Anita} Three common female names
- J = {June, July, January} Months of the year starting with J
- M = {January, May, July, August, December} Months with 31 days excluding March and October



# MORE SETS

Equal sets have exactly the same elements no matter what the order is

$$A = \{\text{DOG, CAT, CANARY}\}$$

$$B = \{\text{CAT, CANARY, DOG}\}$$

Set A has exactly the same elements as Set B therefore  $A = B$

Write equal sets so that  $X = Y$

$$X = \{1, 2, 3, 4\} \quad Y = \{4, 3, 2, 1\}$$

$$X = \{15, 17, 19, 21\} \quad Y = \{21, 19, 17, 15\}$$

$$X = \{l, m, n, o, p\} \quad Y = \{p, o, n, m, l\}$$

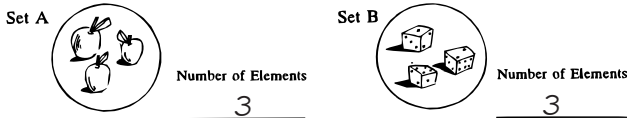
$$X = \{\text{EVEN NUMBERS BETWEEN 0 \& 10}\} \quad Y = \{2, 4, 6, 8\}$$

$$X = \{\text{THE FIRST 5 LETTERS OF THE ALPHABET}\} \quad Y = \{a, b, c, d, e\}$$

$$X = \{\text{THE LAST 3 MONTHS OF THE YEAR}\} \quad Y = \{\text{Oct, Nov, Dec}\}$$

$$X = \{\text{DAYS OF THE WEEK STARTING WITH T}\} \quad Y = \{\text{Tuesday, Thursday}\}$$

Equivalent Sets contain the same number of elements



Set A is equivalent to Set B

Write down the number of elements in each set in the box

$$U = \{\text{5 smiley faces}\} \quad 5$$

$$V = \{a, b, c\} \quad 3$$

$$W = \{\text{4 playing cards}\} \quad 4$$

$$X = \{\text{3 birds}\} \quad 3$$

$$Y = \{\text{6 kitchen items}\} \quad 6$$

$$Z = \{7 circles\} \quad 7$$

Write down all the sets that are equivalent

Sets V and X are equivalent

List the elements in these sets

2 sports that use a bat  $S = \{\text{Baseball, Cricket}\}$

Even numbers between 0 & 10  $E = \{2, 4, 6, 8\}$

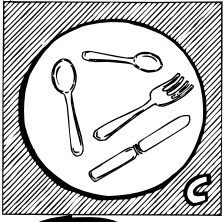
Boys in our class with red hair  $R = \{\}$

Girls in our class with black hair  $B = \{\}$

Pupils in our class who walk to school  $W = \{\}$

Now write down all the sets above that are equivalent

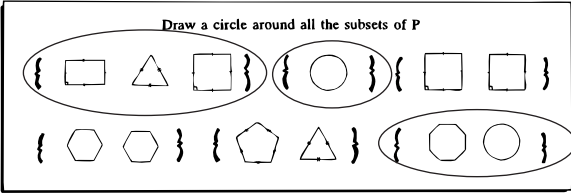
# SUBSETS



Set C is a set of cutlery  
 Any element from set C is called a Subset  
 A Knife is a subset of C  $\text{Knife} \subset C$   
 A Selection of elements from set C can also be called a Subset  $\text{Spoon, Knife} \subset C$



$P = \{\square, \triangle, \square, \text{octagon}, \text{circle}\}$



Study these sets

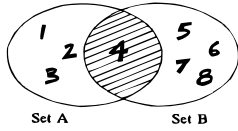
$E = \{2, 4, 6, 8\}$      $N = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$O = \{1, 3, 5\}$      $A = \{10, 1\}$      $S = \{3, 5\}$

Write TRUE or FALSE for the following

$E \subset N$  True     $S \subset O$  True     $A \subset E$  False  
 $N \subset E$  False     $A \subset N$  True     $S \subset E$  False

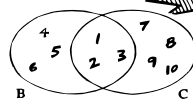
# INTERSECTION SETS



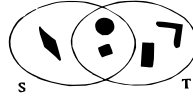
In the diagram  $A = \{1, 2, 3, 4\}$   
 $B = \{4, 5, 6, 7, 8\}$

The shaded part is the intersection of set A and set B.  
 The number in this shaded part is 4.  
 It is written  $A \cap B = \{4\}$

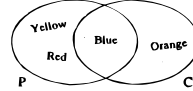
ANSWER THESE QUESTIONS



$B = \{4, 5, 6, 7, 8, 9, 10\}$   
 $C = \{1, 2, 3, 4, 5, 6\}$   
 $B \cap C = \{1, 2, 3\}$



$S = \{\text{leaf}\}$   
 $T = \{\text{dot, bar, 7}\}$   
 $S \cap T = \{\text{dot, bar}\}$



$P = \{\text{Yellow, Red}\}$   
 $C = \{\text{Blue, Orange}\}$   
 $P \cap C = \{\text{Blue}\}$

If two sets have no elements that are the same then their intersection is an empty set  $\{\}$



$H = \{\text{cat, dog}\}$      $O = \{\text{Horse, Bird}\}$   
 $H \cap O = \{\}$

Complete these by writing the intersections

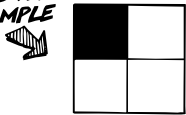
$X = \{a, b, c, d, e, f, g\}$      $Y = \{e, f, g, h, i, j\}$      $X \cap Y = \{e, f, g\}$   
 $P = \{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}\}$      $R = \{\frac{1}{10}, \frac{2}{20}, \frac{3}{3}\}$      $P \cap R = \{\frac{1}{2}\}$   
 $F = \{2, 4, 6, 8, 10\}$      $O = \{1, 2, 3, 4, 5, 6\}$      $F \cap O = \{2, 4, 6\}$   
 $N = \{\square, \square, \triangle\}$      $W = \{\square, \square, \triangle\}$      $N \cap W = \{\square\}$   
 $V = \{a, e, i, o, u\}$      $Z = \{u, v, w, x, y, z\}$      $V \cap Z = \{u\}$

48 ↔ 49  
 50 ↔ 51

# - FRACTIONS -

- A FRACTION IS A PART OF SOMETHING.!!

HERE'S AN EXAMPLE



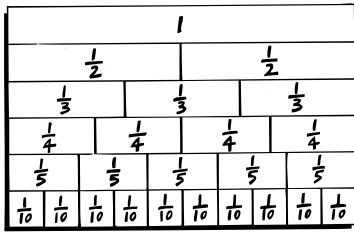
The square is divided into 4 parts.  
 One is shaded. Therefore  $\frac{1}{4}$  is shaded.

In the circle beside each shape, write the fraction of the shape that is shaded.

Examples:  $\frac{1}{2}$ ,  $\frac{1}{5}$ ,  $\frac{5}{16}$ ,  $\frac{1}{3}$ ,  $\frac{9}{16}$ ,  $\frac{3}{4}$ ,  $\frac{1}{3}$ ,  $\frac{3}{8}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$ ,  $\frac{1}{3}$ ,  $\frac{3}{4}$ ,  $\frac{1}{3}$ ,  $\frac{2}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{5}$ ,  $\frac{2}{100}$

# - NOW SHADE IN THESE SHAPES TO SHOW EACH FRACTION!

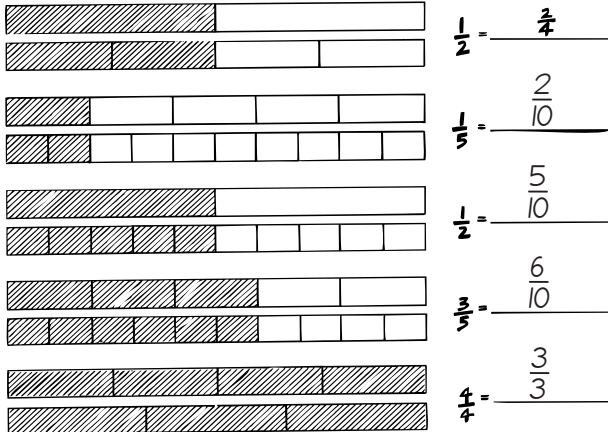
# FURTHER FRACTIONS!



**-EQUIVALENT FRACTIONS** are fractions that are the same.

$\frac{2}{4}$  is the same as  $\frac{1}{2}$  and  $\frac{5}{10}$ !

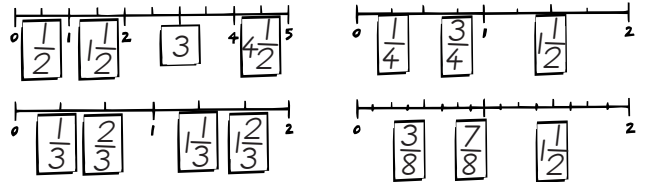
Using the diagrams, write down the equivalent fractions.  
The first one is done for you!



Now use a <, > or = between each fraction.

1 $\frac{1}{3} < \frac{1}{2}$ $\frac{2}{3} < \frac{8}{10}$ $\frac{2}{3} < \frac{9}{10}$	2 $\frac{1}{10} < \frac{1}{5}$ $\frac{4}{5} > \frac{3}{4}$ $\frac{3}{4} > \frac{5}{10}$	3 $\frac{1}{5} < \frac{1}{4}$ $\frac{1}{2} = \frac{5}{10}$ $\frac{3}{5} < \frac{2}{3}$	4 $\frac{1}{2} > \frac{2}{5}$ $\frac{3}{5} < \frac{3}{4}$ $1 > \frac{9}{10}$
--	--	---	---

Fill in the boxes with the correct numbers.

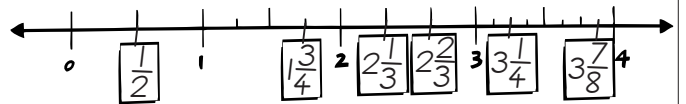


Fill in the boxes.

$$\frac{4}{10} = \frac{2}{5} \quad \frac{6}{8} = \frac{3}{4} \quad \frac{5}{10} = \frac{1}{2} \quad \frac{2}{6} = \frac{1}{3}$$

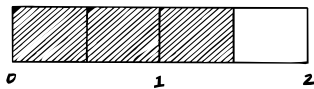
$$\frac{8}{10} = \frac{4}{5} \quad \frac{4}{8} = \frac{1}{2} \quad \frac{3}{4} = \frac{9}{12} \quad \frac{3}{5} = \frac{12}{20}$$

$$\frac{1}{2} = \frac{20}{40} \quad \frac{7}{10} = \frac{14}{20} \quad \frac{4}{4} = \frac{1}{1} \quad \frac{6}{8} = \frac{3}{4}$$



52 ↔ 53  
54 ↔ 55

## HOW DO YOU CHANGE $1\frac{1}{2}$ INTO A FRACTION?



There are 3 lots of  $\frac{1}{2}$  in  $1\frac{1}{2}$  so  $1\frac{1}{2}$  into a fraction =  $\frac{3}{2}$

Now write these as fractions.

$1\frac{1}{4} = \frac{5}{4}$	$1\frac{2}{3} = \frac{5}{3}$	$1\frac{3}{5} = \frac{8}{5}$
$2\frac{1}{2} = \frac{5}{2}$	$1\frac{3}{4} = \frac{7}{4}$	$2\frac{1}{10} = \frac{21}{10}$

Write these fractions as mixed numbers.

$\frac{7}{4} = 1\frac{3}{4}$	$\frac{7}{3} = 2\frac{1}{3}$	$\frac{13}{10} = 1\frac{3}{10}$
$\frac{10}{3} = 3\frac{1}{3}$	$\frac{5}{2} = 2\frac{1}{2}$	$\frac{12}{5} = 2\frac{2}{5}$

## EQUIVALENT FRACTIONS

Equivalent fractions are fractions that are the same.

Here are some equivalent fractions for  $\frac{3}{4}$  E = {  $\frac{3}{4}, \frac{6}{8}, \frac{9}{12}, \frac{12}{16}, \frac{15}{20}$  }

Fill in the gaps to find the equivalent fractions.

$$\frac{1}{2} = \left\{ \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{6}{12}, \frac{7}{14} \right\}$$

$$\frac{1}{3} = \left\{ \frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}, \frac{6}{18} \right\}$$

$$\frac{1}{4} = \left\{ \frac{2}{8}, \frac{3}{12}, \frac{4}{16} \right\}$$

$$\frac{1}{5} = \left\{ \frac{2}{10}, \frac{3}{15}, \frac{4}{20}, \frac{20}{100}, \frac{100}{500}, \frac{200}{1000} \right\}$$

$$\frac{1}{6} = \left\{ \frac{2}{12}, \frac{3}{18}, \frac{4}{24}, \frac{5}{30}, \frac{6}{36} \right\}$$

## ADDING AND SUBTRACTING FRACTIONS!

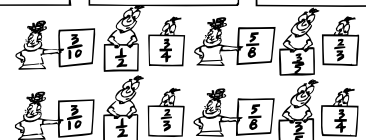
Each fraction must have the same bottom line.  
Try these. The first two are done for you!

$\frac{1}{5} + \frac{1}{5} = \frac{2}{5}$	$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$	$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$	$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$
$\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$	$\frac{1}{7} + \frac{2}{7} = \frac{3}{7}$	$\frac{4}{6} + \frac{1}{6} = \frac{5}{6}$	$\frac{3}{10} + \frac{6}{10} = \frac{9}{10}$
$\frac{5}{8} + \frac{2}{8} = \frac{7}{8}$	$\frac{2}{3} - \frac{1}{3} = \frac{1}{3}$	$\frac{4}{5} - \frac{2}{5} = \frac{2}{5}$	$\frac{4}{10} - \frac{3}{10} = \frac{1}{10}$
$\frac{7}{8} - \frac{4}{8} = \frac{3}{8}$	$\frac{9}{10} - \frac{6}{10} = \frac{3}{10}$	$\frac{2}{2} - \frac{1}{2} = \frac{1}{2}$	$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

These examples need two steps.

$\frac{3}{4} + \frac{1}{4} = \frac{4}{4} = 1$	$\frac{2}{3} + \frac{3}{3} = \frac{5}{3} = 1\frac{2}{3}$	$\frac{4}{5} + \frac{2}{5} = \frac{6}{5} = 1\frac{1}{5}$	$\frac{2}{5} + \frac{6}{5} = \frac{8}{5} = 1\frac{3}{5}$
$\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$	$\frac{2}{4} + \frac{3}{4} = \frac{5}{4} = 1\frac{1}{4}$	$\frac{7}{8} + \frac{2}{8} = \frac{9}{8} = 1\frac{1}{8}$	$\frac{7}{10} + \frac{6}{10} = \frac{13}{10} = 1\frac{3}{10}$

Now put these **FRACTIONS** into their correct order from smallest to largest.



# PERCENTAGES %

Percent means divided by 100.

10% means 10 out of 100 or  $\frac{10}{100}$  or  $0.1$   
 27% means 27 out of 100 or  $\frac{27}{100}$  or  $0.27$

$15\% = \frac{15}{100} = \frac{3}{20}$     $25\% = \frac{25}{100} = \frac{1}{4}$     $30\% = \frac{30}{100} = \frac{3}{10}$     $12\% = \frac{12}{100} = \frac{3}{25}$   
 $75\% = \frac{75}{100} = \frac{3}{4}$     $60\% = \frac{60}{100} = \frac{3}{5}$     $45\% = \frac{45}{100} = \frac{9}{20}$     $99\% = \frac{99}{100}$   
 $100\% = \frac{100}{100} = 1$     $12.5\% = \frac{125}{1000} = \frac{1}{8}$     $5\% = \frac{5}{100} = \frac{1}{20}$     $0.1\% = \frac{1}{1000}$

- Write these fractions as percentages.

$\frac{10}{100} = 10\%$     $\frac{16}{100} = 16\%$     $\frac{25}{100} = 25\%$     $\frac{50}{100} = 50\%$   
 $\frac{3}{20} = \frac{15}{100} = 15\%$     $\frac{10}{20} = \frac{50}{100} = 50\%$     $\frac{7}{10} = \frac{70}{100} = 70\%$   
 $\frac{3}{50} = \frac{6}{100} = 6\%$     $\frac{9}{25} = \frac{36}{100} = 36\%$     $\frac{4}{5} = \frac{80}{100} = 80\%$

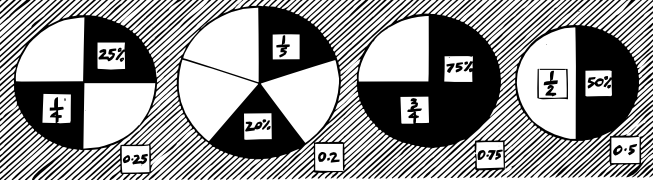
- Write these percentages as decimals.

$27\% = 0.27$     $60\% = 0.6$     $25\% = 0.25$     $50\% = 0.5$   
 $30\% = 0.3$     $45\% = 0.45$     $19\% = 0.19$     $27\% = 0.27$

- Write these decimals as percentages.

$0.54 = 54\%$     $0.82 = 82\%$     $0.55 = 55\%$     $0.33 = 33\%$   
 $0.21 = 21\%$     $0.95 = 95\%$     $0.6 = 60\%$     $0.17 = 17\%$   
 $0.05 = 5\%$     $0.75 = 75\%$     $0.02 = 2\%$     $0.37 = 37\%$

## Equivalent percentages, fractions, and decimals.



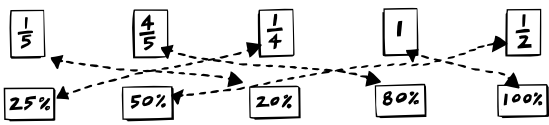
Write the correct numerals in the spaces.

**1**  $50\% = \frac{50}{100} = \frac{1}{2}$    **2**  $25\% = \frac{25}{100} = \frac{1}{4}$   
**3**  $75\% = \frac{75}{100} = \frac{3}{4}$    **4**  $20\% = \frac{20}{100} = \frac{1}{5}$

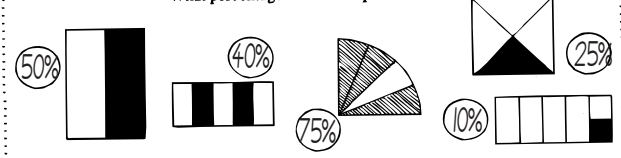
Complete this table.

Percentage	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Tenths	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{9}{10}$	$\frac{10}{10}$

Match up the percentages with the fractions.



What percentage of each shape is shaded?



56 ↔ 57  
58 ↔ 59

# PERCENTAGES OF NUMBERS!

**1** To find 50% of 10 :  $\frac{50}{100} \times 10$   
 or  $\frac{1}{2}$  of 10 = 5  
 $\therefore$  50% of 10 is 5

Find 50% of: 

20	26	34	50	68	74	90	99
10	13	17	25	34	37	45	49

**2** Find 25% of 28 :  $\frac{25}{100} \times 28$   
 or  $\frac{1}{4} \times 28 = \frac{28}{4} = 7$   
 $\therefore$  25% of 28 is 7

Find 25% of: 

12	20	36	40	80	200	1000	50
3	5	9	10	20	50	250	125

 or  $12\frac{1}{2}$

**3** Find 30% of 20 :  $\frac{30}{100} \times 20$   
 or  $\frac{3}{10} \times 20 = \frac{60}{10} = 6$   
 $\therefore$  30% of 20 is 6

Find 30% of: 

21	30	36	60	100	210	1000	150
7	10	12	20	33	70	333	50

# PERCENTAGES OF QUANTITIES

**1**

- A woman's income is \$500 per week.
- She gets a 10% raise.
- How much does she now earn?

THIS MEANS 10% of 500  
 $= \frac{10}{100} \times 500$   
 or  $\frac{1}{10} \times 500 = 50$   
 $\therefore$  she gets a \$50 raise and now earns \$550

**2**

- A shop offers a discount of 30% off all its prices.
- You see a telephone for \$150.
- THIS MEANS 30% of 150  
 $= \frac{30}{100} \times 150$   
 or  $\frac{3}{10} \times 150 = 45$
- How much is the discount?
- You get a \$45 discount and only pay (\$150 - \$45) \$105

**3**

- Your parents decide to give you a 20% raise in your allowance.
- You get \$5 a week now.
- How much will you get after the raise?  
 $= \frac{20}{100} \times \$5$   
 $= \$1$  raise  
 (New allowance)  
 $= \$6$

**4**

- You save \$600 and spend 30% of it.
- How much do you have left?  
 $\frac{30}{100} \times 600 = 180$   
 $\$600 - \$180 = \$420$  left

**5**

- A factory has 1200 employees.
- 75% of them are women.
- How many men and women work at the factory?  
 $\frac{75}{100} \times 1200 = 900$  women  
 $= 300$  men

**6**

- The high score on a video game is 1200.
- You score 10% less than this.
- What is your score?  
 $\frac{10}{100} \times 1200 = 120$   
 $= 1200 - 120 = 1080$  points

**7**

- You eat 20% of the chocolates in a box that has 50 chocolates.
- How many chocolates did you eat?  
 $\frac{20}{100} \times 50 = 10$  chocolates  
 $= 40$  chocs left

# DECIMALS

Our numbering system is based on tens. Each digit has a place value.

Decimals include numbers less than 1.

Here are some decimal fractions

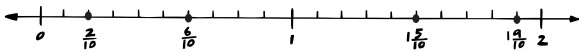
$$0.3 = \frac{3}{10} \quad 0.7 = \frac{7}{10} \quad 1.6 = 1 \frac{6}{10}$$

$$0.11 = \frac{11}{100} \quad 0.135 = \frac{135}{1000}$$

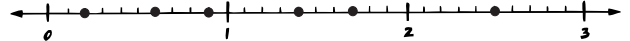
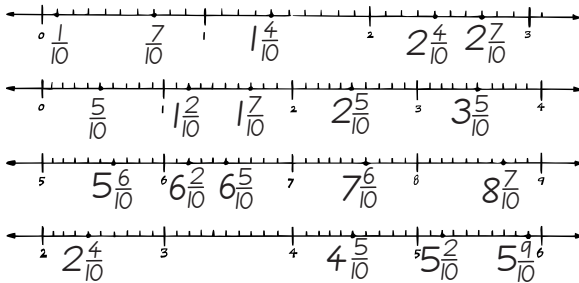
Write these decimals as fractions

$0.4 = \frac{4}{10}$	$0.3 = \frac{3}{10}$	$0.6 = \frac{6}{10}$	$0.5 = \frac{5}{10}$	$3.2 = 3 \frac{2}{10}$
$2.7 = 2 \frac{7}{10}$	$1.4 = 1 \frac{4}{10}$	$0.1 = \frac{1}{10}$	$1.1 = 1 \frac{1}{10}$	$2.0 = 2$
$0.01 = \frac{1}{100}$	$0.43 = \frac{43}{100}$	$0.62 = \frac{62}{100}$	$0.22 = \frac{22}{100}$	$0.05 = \frac{5}{100}$
$1.21 = 1 \frac{21}{100}$	$4.05 = 4 \frac{5}{100}$	$6.00 = 6$	$7.12 = 7 \frac{12}{100}$	$1.11 = 1 \frac{11}{100}$

The number line below is divided into tenths. Different points are shown



What numbers are shown on these number lines



Show these decimal numbers on the number line above.

0.2 0.6 0.9 1.4 1.7 2.5

REMEMBER

> means "is greater than"

< means "is less than"

Put in the > or < signs

$0.5 \geq 0.2$	$0.6 \leq 0.9$
$0.55 \geq 0.5$	$2.1 \geq 1.9$
$2.44 \leq 2.5$	$6.09 \leq 6.1$
$0.24 \leq 0.9$	$0.76 \geq 0.5$
$0.99 \leq 0.999$	$0.83 \geq 0.81$

**- NOW WRITE THESE FRACTIONS AS DECIMALS!**

$$\frac{9}{10} = 0.9 \quad \frac{4}{10} = 0.4 \quad \frac{5}{10} = 0.5 \quad \frac{20}{100} = 0.2$$

$$\frac{36}{100} = 0.36 \quad \frac{6}{100} = 0.06 \quad \frac{45}{10} = 4.5 \quad \frac{800}{100} = 8$$

$$\frac{37}{10} = 3.7 \quad \frac{14}{100} = 0.14 \quad \frac{416}{100} = 4.16 \quad \frac{12}{100} = 0.12$$

$$\frac{1}{100} = 0.01 \quad \frac{16}{10} = 1.6 \quad \frac{125}{10} = 12.5 \quad \frac{190}{100} = 1.9$$

60 ↔ 61  
62 ↔ 63

## DECIMAL ADDITION + SUBTRACTION

Rule: Keep the decimal points under each other. No calculators for this page.

**1**

$\begin{array}{r} 0.2 \\ +0.7 \\ \hline 0.9 \end{array}$	$\begin{array}{r} 0.6 \\ +0.2 \\ \hline 0.8 \end{array}$	$\begin{array}{r} 1.4 \\ +2.3 \\ \hline 3.7 \end{array}$	$\begin{array}{r} 6.5 \\ +3.4 \\ \hline 9.9 \end{array}$	$\begin{array}{r} 2.1 \\ +3.8 \\ \hline 5.9 \end{array}$	$\begin{array}{r} 7.4 \\ +2.6 \\ \hline 10.0 \end{array}$
--	--	--	--	--	---

**2**

$\begin{array}{r} 4.4 \\ +7.3 \\ \hline 11.7 \end{array}$	$\begin{array}{r} 3.7 \\ +9.2 \\ \hline 12.9 \end{array}$	$\begin{array}{r} 4.5 \\ +6.4 \\ \hline 10.9 \end{array}$	$\begin{array}{r} 7.1 \\ +6.8 \\ \hline 13.9 \end{array}$	$\begin{array}{r} 5.2 \\ +5.5 \\ \hline 10.7 \end{array}$	$\begin{array}{r} 6.6 \\ +7.3 \\ \hline 13.9 \end{array}$
---	---	---	---	---	---

**3**

$\begin{array}{r} 3.7 \\ +2.4 \\ \hline 6.1 \end{array}$	$\begin{array}{r} 2.5 \\ +1.8 \\ \hline 4.3 \end{array}$	$\begin{array}{r} 4.3 \\ +2.9 \\ \hline 7.2 \end{array}$	$\begin{array}{r} 7.7 \\ +1.8 \\ \hline 9.5 \end{array}$	$\begin{array}{r} 6.4 \\ +2.8 \\ \hline 9.2 \end{array}$	$\begin{array}{r} 4.8 \\ +4.4 \\ \hline 9.2 \end{array}$
--	--	--	--	--	--

**4**

$\begin{array}{r} 4.6 \\ +5.6 \\ \hline 10.2 \end{array}$	$\begin{array}{r} 3.7 \\ +8.6 \\ \hline 12.3 \end{array}$	$\begin{array}{r} 6.6 \\ +5.8 \\ \hline 12.4 \end{array}$	$\begin{array}{r} 5.8 \\ +6.7 \\ \hline 12.5 \end{array}$	$\begin{array}{r} 3.4 \\ +9.8 \\ \hline 13.2 \end{array}$	$\begin{array}{r} 7.9 \\ +6.8 \\ \hline 14.7 \end{array}$
---	---	---	---	---	---

**5**

**SUBTRACTION**

$\begin{array}{r} 0.9 \\ -0.4 \\ \hline 0.5 \end{array}$	$\begin{array}{r} 2.7 \\ -1.4 \\ \hline 1.3 \end{array}$	$\begin{array}{r} 3.3 \\ -2.1 \\ \hline 1.2 \end{array}$	$\begin{array}{r} 4.5 \\ -2.3 \\ \hline 2.2 \end{array}$	$\begin{array}{r} 3.4 \\ -1.1 \\ \hline 2.3 \end{array}$
--	--	--	--	--

**6**

$\begin{array}{r} 4.3 \\ -1.5 \\ \hline 2.8 \end{array}$	$\begin{array}{r} 3.2 \\ -0.7 \\ \hline 2.5 \end{array}$	$\begin{array}{r} 2.7 \\ -1.9 \\ \hline 0.8 \end{array}$	$\begin{array}{r} 4.1 \\ -2.6 \\ \hline 1.5 \end{array}$	$\begin{array}{r} 3.4 \\ -2.8 \\ \hline 0.6 \end{array}$	$\begin{array}{r} 6.2 \\ -1.4 \\ \hline 4.8 \end{array}$
--	--	--	--	--	--

**7**

$\begin{array}{r} 19.3 \\ -7.3 \\ \hline 12.0 \end{array}$	$\begin{array}{r} 17.2 \\ -4.6 \\ \hline 12.6 \end{array}$	$\begin{array}{r} 15.1 \\ -3.5 \\ \hline 11.6 \end{array}$	$\begin{array}{r} 16.7 \\ -4.9 \\ \hline 11.8 \end{array}$	$\begin{array}{r} 18.3 \\ -2.7 \\ \hline 15.6 \end{array}$	$\begin{array}{r} 12.1 \\ -1.7 \\ \hline 10.4 \end{array}$
--	--	--	--	--	--

**8**

$\begin{array}{r} 34.2 \\ -6.5 \\ \hline 27.7 \end{array}$	$\begin{array}{r} 14.5 \\ -9.7 \\ \hline 4.8 \end{array}$	$\begin{array}{r} 27.1 \\ -18.6 \\ \hline 8.5 \end{array}$	$\begin{array}{r} 29.4 \\ -14.7 \\ \hline 14.7 \end{array}$	$\begin{array}{r} 32.1 \\ -27.4 \\ \hline 4.7 \end{array}$	$\begin{array}{r} 16.5 \\ -8.7 \\ \hline 7.8 \end{array}$
--	---	--	---	--	---

**9**

$\begin{array}{r} 136 \\ +125 \\ \hline 261 \end{array}$	$\begin{array}{r} 224 \\ +117 \\ \hline 341 \end{array}$	$\begin{array}{r} 148 \\ +123 \\ \hline 271 \end{array}$	$\begin{array}{r} 141 \\ +249 \\ \hline 390 \end{array}$	$\begin{array}{r} 278 \\ +115 \\ \hline 393 \end{array}$	$\begin{array}{r} 164 \\ +129 \\ \hline 293 \end{array}$
--	--	--	--	--	--

**10**

$\begin{array}{r} 153 \\ -116 \\ \hline 37 \end{array}$	$\begin{array}{r} 192 \\ -159 \\ \hline 33 \end{array}$	$\begin{array}{r} 234 \\ -107 \\ \hline 127 \end{array}$	$\begin{array}{r} 211 \\ -103 \\ \hline 108 \end{array}$	$\begin{array}{r} 251 \\ -136 \\ \hline 115 \end{array}$	$\begin{array}{r} 222 \\ -115 \\ \hline 107 \end{array}$
---	---	--	--	--	--

## - COMPLETE THESE TABLES

X	20
10	200
20	400
50	1000
100	2000

X	16
10	160
100	1600
200	3200
500	8000

X	22
5	110
10	220
20	440
100	2200

X	18
100	1800
50	900
10	180
5	90

X	27
20	540
40	1080
80	2160
100	2700

X	35
10	350
20	700
30	1050
50	1750

Write a > or < to make each sentence true

$10 \times 35 \quad \square \quad 300 \quad 20 \times 17 \quad \square \quad 350$

$15 \times 100 \quad \square \quad 155 \quad 40 \times 80 \quad \square \quad 320$

$5 \times 43 \quad \square \quad 200 \quad 10 \times 82 \quad \square \quad 700$

$5 \times 16 \quad \square \quad 50 \quad 100 \times 5 \quad \square \quad 490$

$10 \times 12 \quad \square \quad 150 \quad 20 \times 12 \quad \square \quad 300$

$100 \times 6 \quad \square \quad 60 \quad 15 \times 20 \quad \square \quad 350$

# DIVISION REVISION

No calculators for this page

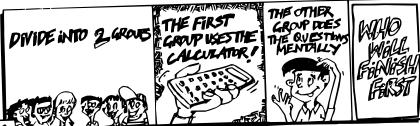
EXAMPLES  $\Rightarrow$   $9.7 \times 10 = 97$     $58.119 \times 100 = 5811.9$   
 $6.4 \times 10 = 64$     $12.7 \times 10 = 127$   
 $3.24 \times 10 = 32.4$     $5.771 \times 10 = 57.71$   
 $0.0514 \times 100 = 5.14$     $6.0892 \times 100 = 608.92$   
 $9.2 \times 100 = 920$     $0.6 \times 1000 = 600$   
 $0.0957 \times 1000 = 95.7$     $87.24 \times 1000 = 87240$

## DIVIDING DECIMALS BY 10, 100 & 1000

Rule: Move the decimal point to the left

EXAMPLES  $\Rightarrow$   $627 \div 10 = 62.7$     $582 \div 100 = 5.82$   
 $3.4 \div 10 = 0.34$     $2.7 \div 10 = 0.27$   
 $0.55 \div 10 = 0.055$     $12.23 \div 10 = 1.223$   
 $16.3 \div 100 = 0.163$     $34.88 \div 100 = 0.3488$   
 $410 \div 100 = 4.10$     $79 \div 1000 = 0.079$   
 $548.1 \div 1000 = 0.5481$     $736.63 \div 1000 = 0.73663$

HEAR THE CALCULATORS!



START NOW!

$64 \times 10 = 640$     $12.6 \times 10 = 126$   
 $9.65 \times 100 = 965$     $0.543 \times 100 = 54.3$   
 $2.7 \times 10 = 27$     $8.421 \times 1000 = 8421$

64  $\leftrightarrow$  65  
66  $\leftrightarrow$  67

# MULTIPLYING DECIMALS

Rule: Count how many decimal places.

EXAMPLES

$4.2 \times 3 = 12.6$     $2.4 \times 1.2 = 2.88$   
1 decimal place   2 decimal places  
 $2.14 \times 2 = 4.28$     $3.11 \times 0.5 = 1.555$   
2 decimal places   3 decimal places

The answer must have that many places

Find the answers (calculators optional)

1  $\begin{array}{r} 3.2 \\ \times 6 \\ \hline 19.2 \end{array}$     $\begin{array}{r} 4.1 \\ \times 5 \\ \hline 20.5 \end{array}$     $\begin{array}{r} 5.4 \\ \times 2 \\ \hline 10.8 \end{array}$     $\begin{array}{r} 2.1 \\ \times 8 \\ \hline 16.8 \end{array}$     $\begin{array}{r} 4.4 \\ \times 2 \\ \hline 8.8 \end{array}$     $\begin{array}{r} 3.2 \\ \times 4 \\ \hline 12.8 \end{array}$

2  $\begin{array}{r} 4.2 \\ \times 6 \\ \hline 25.2 \end{array}$     $\begin{array}{r} 3.3 \\ \times 4 \\ \hline 13.2 \end{array}$     $\begin{array}{r} 6.4 \\ \times 3 \\ \hline 19.2 \end{array}$     $\begin{array}{r} 5.5 \\ \times 5 \\ \hline 27.5 \end{array}$     $\begin{array}{r} 4.2 \\ \times 8 \\ \hline 33.6 \end{array}$     $\begin{array}{r} 9.3 \\ \times 5 \\ \hline 46.5 \end{array}$

3  $\begin{array}{r} 2.7 \\ \times 8 \\ \hline 21.6 \end{array}$     $\begin{array}{r} 4.6 \\ \times 5 \\ \hline 23.0 \end{array}$     $\begin{array}{r} 9.3 \\ \times 8 \\ \hline 74.4 \end{array}$     $\begin{array}{r} 5.7 \\ \times 6 \\ \hline 34.2 \end{array}$     $\begin{array}{r} 3.9 \\ \times 6 \\ \hline 23.4 \end{array}$     $\begin{array}{r} 8.4 \\ \times 7 \\ \hline 58.8 \end{array}$

4  $\begin{array}{r} 6.1 \\ \times 0.5 \\ \hline 3.05 \end{array}$     $\begin{array}{r} 3.7 \\ \times 0.2 \\ \hline 0.74 \end{array}$     $\begin{array}{r} 4.4 \\ \times 0.3 \\ \hline 1.32 \end{array}$     $\begin{array}{r} 6.2 \\ \times 0.5 \\ \hline 3.1 \end{array}$     $\begin{array}{r} 5.3 \\ \times 1.6 \\ \hline 8.48 \end{array}$     $\begin{array}{r} 4.4 \\ \times 1.3 \\ \hline 5.72 \end{array}$

5  $\begin{array}{r} 35.6 \\ \times 4 \\ \hline 142.4 \end{array}$     $\begin{array}{r} 17.21 \\ \times 8 \\ \hline 137.68 \end{array}$     $\begin{array}{r} 16.22 \\ \times 7 \\ \hline 113.54 \end{array}$     $\begin{array}{r} 5.21 \\ \times 9 \\ \hline 46.89 \end{array}$     $\begin{array}{r} 6.71 \\ \times 3 \\ \hline 20.13 \end{array}$     $\begin{array}{r} 13.21 \\ \times 5 \\ \hline 66.05 \end{array}$

6  $\begin{array}{r} 16.6 \\ \times 2.2 \\ \hline 36.52 \end{array}$     $\begin{array}{r} 14.5 \\ \times 3.7 \\ \hline 53.65 \end{array}$     $\begin{array}{r} 4.9 \\ \times 2.3 \\ \hline 11.27 \end{array}$     $\begin{array}{r} 5.4 \\ \times 1.7 \\ \hline 9.18 \end{array}$     $\begin{array}{r} 6.2 \\ \times 3.5 \\ \hline 21.7 \end{array}$     $\begin{array}{r} 7.8 \\ \times 4.4 \\ \hline 34.32 \end{array}$

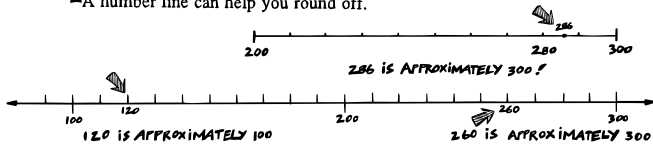
Now use your calculator  $\Rightarrow$   $0.607 \times 0.5 = 0.3035$     $4.71 \times 6.45 = 30.3795$     $3.78 \times 2.11 = 7.9758$     $6.55 \times 3.07 = 20.1085$     $5.23 \times 9.58 = 50.1034$

$19 \times 34 = 785$     $24 \times 16 = 217$     $16.5 \times 18 = 297$   
 $660 \div 915$     $389 \div 208$   
 $2.7 \times 5 \times 13.9 = 382.25$     $147 \times 2.615 = 384.405$     $19.8 \times 15.27 = 302.346$

# -ROUNDING OFF!



-A number line can help you round off.



Round off these numbers to the nearest 100

330	300	690	700	407	400	85	100
117	100	263	300	470	500	905	900
140	100	158	200	499	500	50	100

Round off these numbers to the nearest 10

87	90	42	40	144	140	236	240
24	20	16	20	391	390	296	250
321	330	465	470	198	200	372	370

Round off these decimals to the nearest whole number.

80.6	81	47.2	47	6.6	7	15.1	15
12.7	13	18.55	19	27.31	27	14.2	14
19.7	20	8.6	9	15.5	16	14.49	14

Rounding to the nearest 100

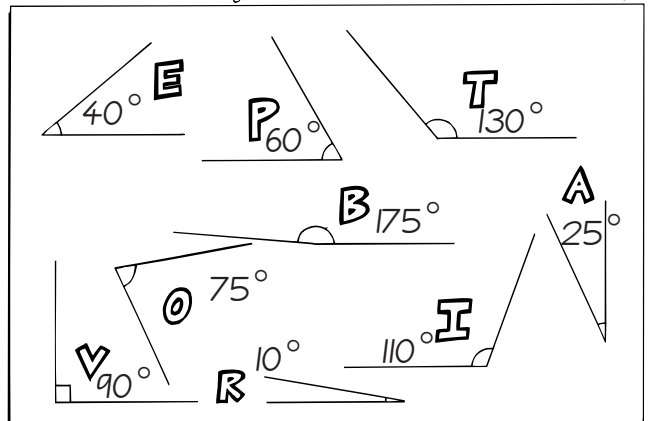
Circle all those numbers that would round off to 400. Underline all those numbers that would round off to 500.

496	460	370	407
546	450	531	355

# -FROG FUN!



Measure the angles. Use the letters to work out the answer to the codes!



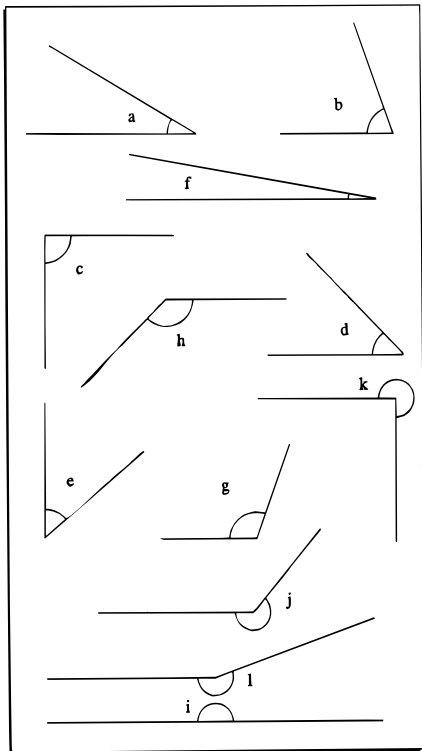
- What does a frog with long ears say?  
R A B B I T   R A B B I T  
10 25 175 175 110 130   10 25 175 175 110 130
- What does a bandit frog say?  
R O B I T   R O B I T  
10 75 175 110 130   10 75 175 110 130
- What does a frog tailor say?  
R I B I T   R I B I T  
10 110 60 110 130   10 110 60 110 130
- What does a frog engineer say?  
R I V E T   R I V E T  
10 110 90 40 130   10 110 90 40 130
- What does a computer frog say?  
R O B O T   R O B O T  
10 75 175 75 130   10 75 175 75 130



# -ESTIMATING ANGLES

An estimate is a guess. (But not a wild way out guess.)

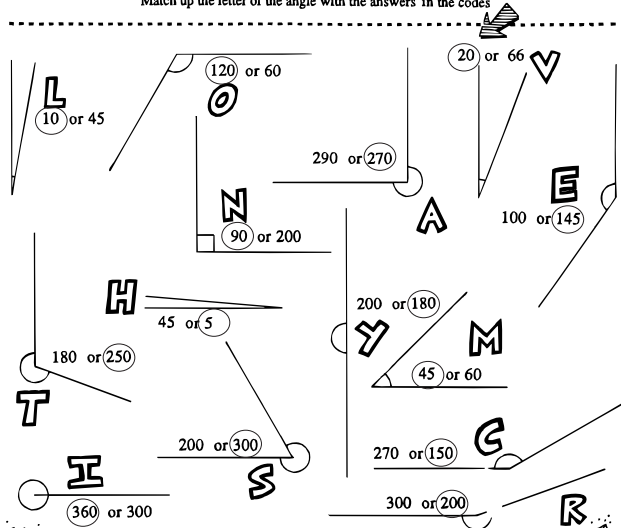
Estimate the size of each angle, then using your protractor measure the angle and compare it with your guess.



	ESTIMATE	MEASURE
a		30°
b		70°
c		90°
d		45°
e		50°
f		10°
g		110°
h		135°
i		180°
j		230°
k		270°
l		200°

# CHRISTMAS QUIZZERS

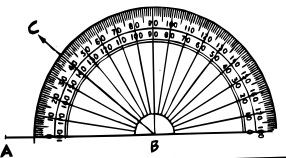
Choose which angle size is the best estimate of each angle. Match up the letter of the angle with the answers in the codes



68 ↔ 69  
70 ↔ 72

# -DRAWING ANGLES

Draw an angle ABC of 40°



- STEP 1** Draw line AB
- STEP 2** Place your protractor on AB as above.
- STEP 3** Count from 0 to 40 and mark the spot.
- STEP 4** Remove the protractor and draw line BC

## -DRAW ANGLE ABC

1 Draw ABC = 30°

2 Draw DEF = 70°

3 Draw GHI = 85°

4 Draw JKL = 110°

5 Draw MNO = 125°

6 Draw PQR = 150°

7 Draw STU = 30°

8 Draw VWX = 100°

9 Draw JXZ = 90°

# -TYPES OF ANGLES

Write down an explanation for each.

- 1 Right angles**
- 2 Acute angles**
- 3 Obtuse angles**
- 4 Straight angles**
- 5 Reflex angle**

- A right angle: An angle of 90°
- An acute angle: An angle between 0° and 90°
- An obtuse angle: An angle between 90° and 180°
- A straight angle: An angle of 180°
- A reflex angle: An angle between 180° and 360°

## -NOW IT'S YOUR TURN!

Draw 3 reflex angles

Draw 2 right angles

Draw 4 acute angles

Draw 1 straight angle

Draw 2 obtuse angles

Find the missing angles and crack the code.


What is the difference between an Indian Elephant and an African Elephant?

“ABOUT THREE THOUSAND MILES.”

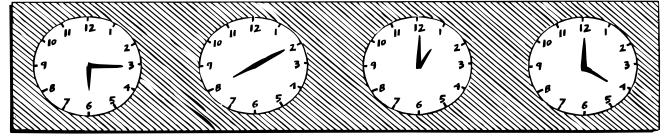
75 15 90 35 60 60 30 130 80 80  
60 30 90 35 110 75 40 170  
100 140 85 80 110



73 ↔ 74  
75 ↔ 76

# - GEOMETRY -

What is the size of the smaller angle between the minute and hour hands?



angle  $90^\circ$   $180^\circ$   $30^\circ$   $120^\circ$

Write down the value of angle ABC


Measure the marked angles with a protractor


What do all the pairs have in common?

All the pairs have the same size

These angles are called Vertically Opposite

Vertically Opposite angles are the same

Find the missing angles to crack the code


WHY DID THE CUCUMBER NEED A LAWYER?

“IT WAS IN A PICKLE!”

45 120 10 135 170 45 110 135 60 45 100 35 70 25

## - HOW MANY DEGREES IN A STRAIGHT LINE?

**1** Draw a triangle on a piece of cardboard and mark all the vertices.

**2** Cut your triangle into 3 parts.

**3** Now put the three marked angles together. You should get a straight line.

How many degrees do the angles inside a triangle add up to?  $180^\circ$

How many degrees do the angles in a straight line add up to?  $180^\circ$

You should have found that angles on a straight line equal  $180^\circ$

# -WHAT DO THE INSIDE ANGLES OF A TRIANGLE ADD UP TO ?

Find the missing angles to answer the codes.

<b>G</b> 	<b>L</b> 	<b>C</b> 	<b>D</b> 	<b>R</b> 
<b>O</b> 	<b>V</b> 	<b>I</b> 	<b>N</b> 	<b>A</b> 
<b>T</b> 	<b>S</b> 	<b>E</b> 	<b>H</b> 	<b>Y</b> 

Angle	
A	51.3°
B	51.3°
C	77.4°
A + B + C	= 180°
P	56.3°
Q	67.5°
R	56.3°
P + Q + R	= 180°
L	60°
M	60°
N	60°
L + M + N	= 180°

Angle answers are the actual values.  
Your measurements will probably only be accurate to 1 degree.

What do misers do when it is cold ?

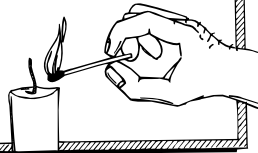
THEY SIT AROUND A CANDLE

55 35 78 100 72 30 55 65 75 50 45 60 90 65 40 65 60 90 78

What do misers do when it is very cold ?

THEY LIGHT IT

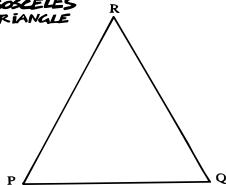
55 35 78 100 70 30 80 35 55 30 55



77 ← → 81  
82, 83 ← → 84

## TYPES OF TRIANGLES 1

ISOSCELES TRIANGLE



- MEASURE THE SIDES!

PQ 6 cm  
PR 7.5 cm  
QR 7.5 cm

- MEASURE THE ANGLES!

P 67°  
Q 67°  
R 46°

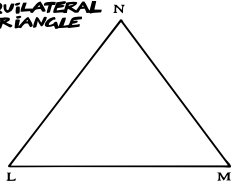
Give an explanation of an isosceles triangle.

A triangle with two sides the same size and two angles the same.

Tonight's homework: Learn how to spell ISOSCELES.

## TYPES OF TRIANGLES 2

EQUILATERAL TRIANGLE



- MEASURE THE SIDES!

LM 7 cm  
LN 7 cm  
MN 7 cm

- MEASURE THE ANGLES!

L 60°  
M 60°  
N 60°

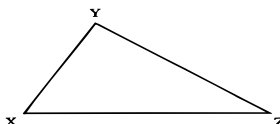
Give an explanation of an equilateral triangle.

A triangle with all sides the same size and all angles equal 60°

Tonight's homework: Learn how to spell EQUILATERAL.

## TYPES OF TRIANGLES 3

SCALENE TRIANGLE



- MEASURE THE SIDES!

XY 4.5 cm  
YZ 6.6 cm  
XZ 7.7 cm

- MEASURE THE ANGLES!

X 60°  
Y 85°  
Z 35°

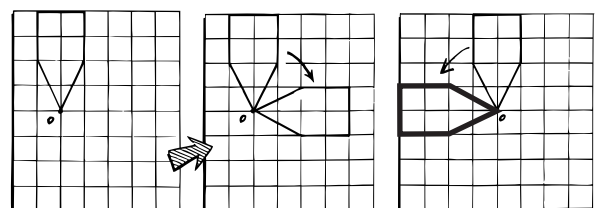
Give an explanation of a SCALENE triangle.

A triangle in which all sides are a different length and all angles are different sizes.

Tonight's homework: Learn how to spell SCALENE.

# - MAKING PATTERNS BY ROTATING

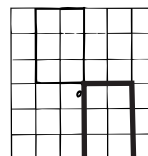
You can rotate clockwise or anticlockwise



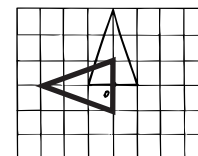
Rotate the shape 90° clockwise around point O

Now you rotate the figure 90° around O

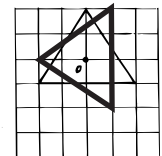
Try these rotations. To help you find the new position, use tracing paper to trace the shape first and then rotate it.



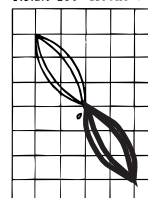
Rotate 180° around O



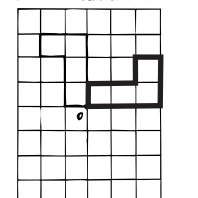
Rotate 90° anticlockwise



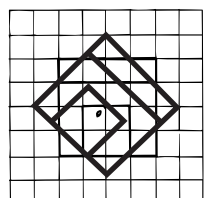
Rotate 90° anticlockwise



Rotate 180° around O



Rotate 270° anticlockwise around O

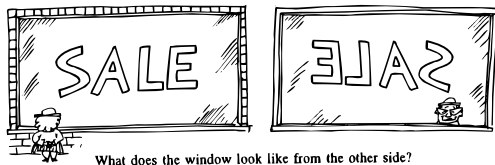


Rotate 45° clockwise

# REFLECTION

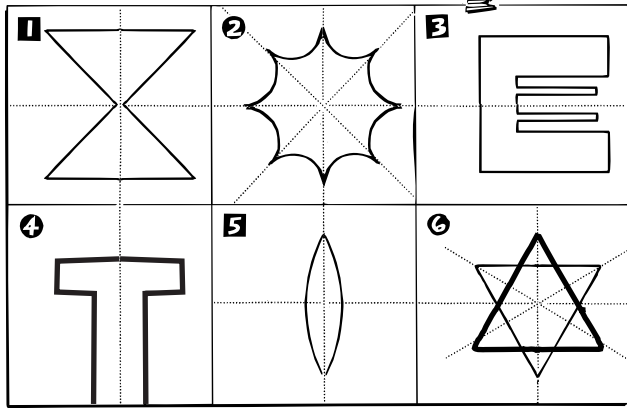
## REFLECTION

- YOU'LL NEED A MIRROR FOR THIS PAGE!



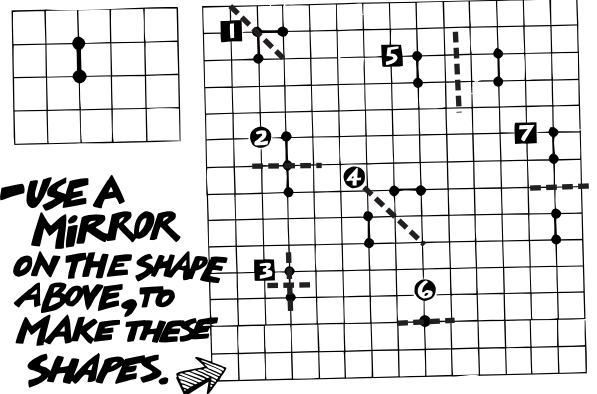
What does the window look like from the other side?

Complete these shapes

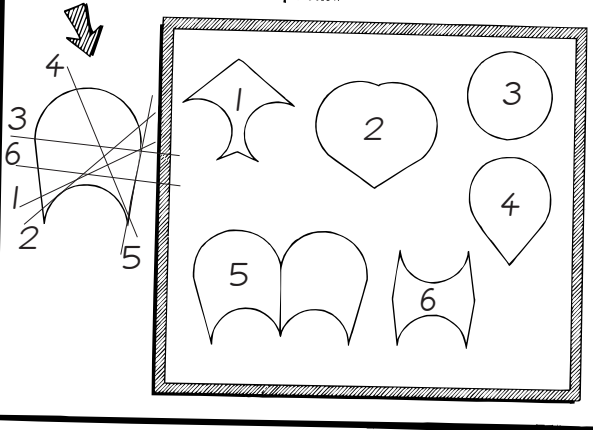


Complete the reflection

THE JELLY WOBBLER WHEN IT SAW THE MILKSHAKE.  
THE JELLY WOBBLER WHEN IT SAW THE MILKSHAKE.



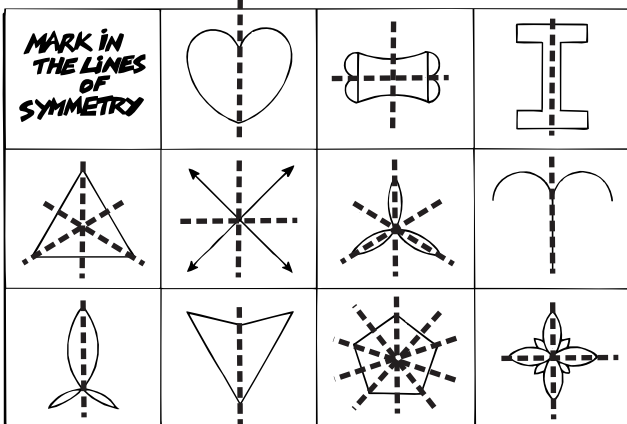
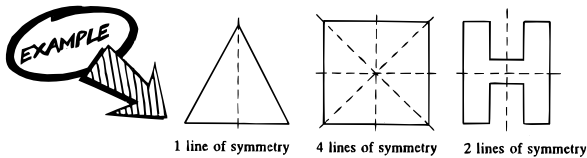
Now use a mirror on this to make the shapes below



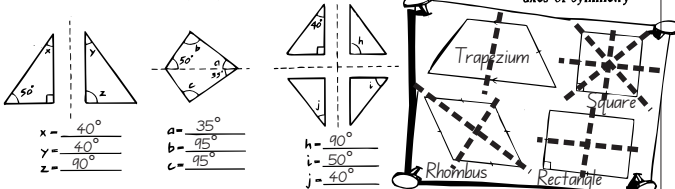
85 ↔ 86  
87 ↔ 88

# SYMMETRY

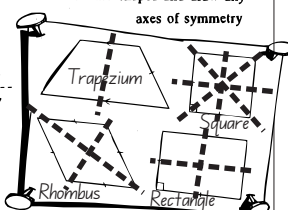
When a figure can reflect onto itself, the mirror line is called a line of symmetry



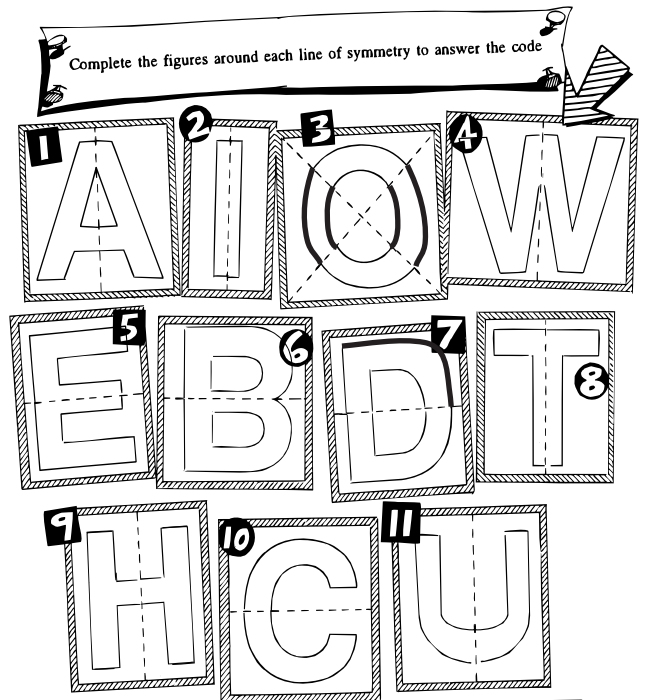
Now calculate the missing angles



Name the shapes and draw any axes of symmetry



Complete the figures around each line of symmetry to answer the code



BALD RABBITS

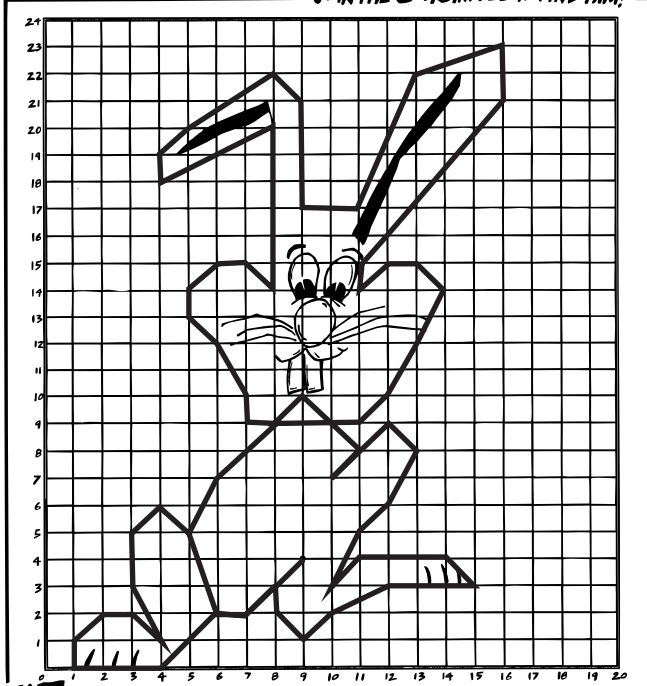
SHOULD WEAR

HARE TONIC



# -WHERE IS THE RABBIT?

-JOIN THE CO-ORDINATES TO FIND HIM!



START

9,4 8,5 8,2 9,1 10,2 12,3 15,3 14,4 12,4 11,4 10,3 11,5 12,6 13,6  
 12,7 10,7 11,8 9,10 8,9 11,9 12,10 13,12 14,14 13,15 12,15 11,14 11,15 12,16  
 16,21 16,23 11,17 9,17 9,21 8,22 5,20 7,19 7,18 6,19 8,20 8,14 7,15 6,15  
 5,14 5,13 6,12 7,10 7,9 8,9 6,7 5,5 6,2 7,2 8,3 7,2 6,2 4,0  
 1,0 1,1 2,2 3,2 4,1 3,3 3,5 4,4 5,5

# ALGEBRA

Write down the next 3 numbers

2, 4, 6, 8, 10, 12, 14  
 1, 3, 5, 7, 9, 11, 13  
 4, 8, 12, 16, 20, 24, 28  
 1, 7, 13, 19, 25, 31, 37  
 10, 8, 6, 4, 2, 0, -2

-EACH NUMBER IN A PATTERN IS CALLED A TERM!

Find the missing terms

6, 10, 14, 18, 22

1, 4, 7, 10, 13

100, 95, 90, 85, 80

50, 44, 38, 32, 26

Look at these patterns

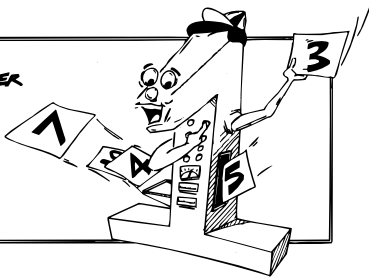
$999 \times 2 = 1998$      $55 \times 5 = 275$      $37 \times 3 = 111$   
 $999 \times 3 = 2997$      $555 \times 5 = 2775$      $37 \times 6 = 222$   
 $999 \times 4 = 3996$      $5555 \times 5 = 27775$      $37 \times 9 = 333$   
 $999 \times 5 = 4995$      $55555 \times 5 = 277775$      $37 \times 12 = 444$   
 $999 \times 6 = 5994$      $1 \times 1 = 1$      $37 \times 15 = 555$   
 $999 \times 7 = 6993$      $11 \times 11 = 121$   
 $999 \times 8 = 7992$      $111 \times 111 = 12321$   
 $999 \times 9 = 8991$      $1111 \times 1111 = 1234321$

99 ↔ 103  
 104 ↔ 106

## WONDER CALCULATOR

EVERYTIME YOU GIVE WONDER CALCULATOR A NUMBER, ANOTHER ONE POPS OUT!

WHAT IS WONDER DOING? FILL IN THE GAPS



IN	1	2	3	4	5	6	7	8
OUT	2	4	6	8	10	12	14	16

The rule is multiply by 2

IN	1	2	3	4	5	6	7	8
OUT	6	7	8	9	10	11	12	13

The rule is add 5

IN	1	2	3	4	5	6	7	8
OUT	0	1	2	3	4	5	6	7

The rule is subtract 1

Sometimes we get a letter to take the place of a number. We call these letters pronumerals or variables.

### EXAMPLES

$6 + 6 = 2 \times 6$      $13 + 13 + 13 = 3 \times 13$   
 $b + b + c = 2b + c$      $a + a + x + x = 2a + 2x$   
 $a + a + a + a = 4 \times a$   
 $= 4a$

Now try these.

$a + a = 2a$      $c + c + c + c = 4c$   
 $f + f + f = 3f$      $g + g + g + g + g + g = 7g$   
 $x + x + x + x = 4x$      $y + y + y + y + y = 5y$   
 $j + j + j + k + k + k = 3j + 3k$      $m + m + m + m + m + p + p = 5m + 2p$

### EXAMPLES

$2a + 4a = 6a$      $10p - 2p = 8p$

You can add or subtract terms that are the same.

Try these

$3b + 4b = 7b$      $5z + 2z = 7z$      $5y + 2y = 7y$   
 $13d + 14d = 27d$      $8x + 2x = 10x$      $13b + 22b = 35b$   
 $3n + 6n = 9n$      $14a + 16a = 30a$      $4d + 15d = 19d$   
 $42g + 16g = 58g$      $5t + 13t = 18t$      $18h + 19h = 37h$   
 $10p - 7p = 3p$      $14r - 12r = 2r$      $8s - 5s = 3s$   
 $27b - 10b = 17b$      $17b - 8b = 9b$      $25j - 15j = 10j$   
 $25k - 8k = 17k$      $11t - 5t = 6t$      $48w - 33w = 15w$   
 $32l - 16l = 16l$      $27p - 19p = 8p$      $31i - 27i = 4i$

$$12r + 15r = 27r \quad 16z - 12z = 4z \quad 4t + 27t = 31t$$

$$27k - 12k = 15k \quad 32p - 25p = 7p \quad 42a + 19a = 61a$$

$$18c + 16c = 34c \quad 21h - 7h = 14h \quad 14t + 12t = 26t$$

$$14b + 19b + 27b + 2b + 6b = 68b \quad 2m + 6m + 9m + 15m = 32m$$

$$12p - 6p + 3p + 5p - 8p = 6p \quad 27q - 12q - 8q + 6q = 13q$$

-SUBSTITUTING MEANS REPLACING A PRONUMERAL WITH A NUMBER!

EXAMPLES

$a = 6, b = 7$

$$a + b = 6 + 7 = 13 \quad ab = 6 \times 7 = 42$$

$$b - a = 7 - 6 = 1 \quad \frac{a}{b} = \frac{6}{7}$$

$$a \div 2 = 6 \div 2 = 3 \quad 4b = 4 \times 7 = 28$$

IF:  $W = 1, Y = 4, Z = 12$   
find the value of

$$w + y = 5 \quad y + z = 9 \quad zy = 48$$

$$z - y = 8 \quad z + w = 13 \quad z \div 4 = 3$$

$$zy + z = 20 \quad 3w + zy = 11 \quad z + 6w = 18$$

g	h	i	j	k	l
100	12	5	0	7	10

Use the table to find the value of :

$$h + i = 17 \quad g \div l = 10$$

$$k \times j = 0 \quad l \div i = 2$$

$$k \times l = 35 \quad l - k = 3$$

$$k \times l = 70 \quad g \div i = 20$$

$$i + k = 12$$

107 ↔ 108  
109 ↔ 111

# TRUTH SETS

EXAMPLE

$X + 5 > 12$  is an open sentence if  $X = 2$  then  $X + 5 > 12$  is false  
X is called a variable if  $X = 20$  then  $X + 5 > 12$  is true

1 Complete this chart

2 Find a truth set for each sentence.

Variable	Sentence	True or False
X = 10	$X + 7 > 15$	true
Y = 3	$10 - Y = 5$	false
M = 5	$M^2 = 25$	true
W = 2	$W + 20 > 12$	true
J = 4	$J^2 + 2 < 20$	true
C = 6	$5C = 56$	false
E = 0	$4E + 2 < 0$	false
K = 5	$2K + 3 < 11$	false
R = 10	$R - 6 < 4$	false
U = 15	$U - 8 > 0$	true

Sentence	Truth Set
$X + 4 < 7$	{0, 1, 2, }
$3X > 12$	{5, 6, 7, ...} <small>THIS MEANS THE FEWER THE BETTER</small>
$X + 5 = 12$	7
$X + 6 < 10$	0, 1, 2, 3
$X - 4 > 2$	7, 8, 9, ...
$X - 6 < 3$	8, 7, 6, ...
$5X > 20$	5, 6, 7, ...
$3X < 15$	4, 3, 2, 1, 0
$18 + X > 3$	5, 4, 3, 2, 1
$2X = 21$	11.5 or 11

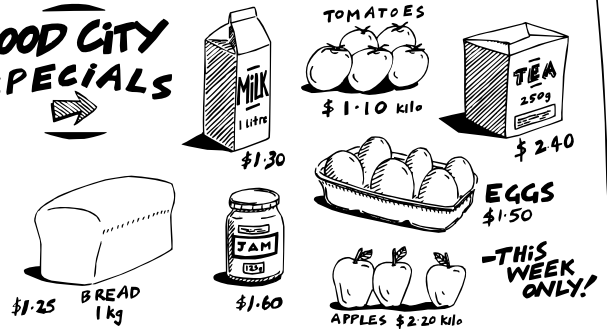
Work out the answers to the questions. Use them to crack the code.

$5 + W = 17$ W = 12	$8 + R = 4$ R = 2	$6 + O = 22$ O = 16
$4Y = 28$ Y = 7	$27 - B = 12$ B = 15	$2N = 38$ N = 19
$21 + A = 7$ A = 3	$S + S + S = 18$ S = 6	$37 - T = 19$ T = 18
$U + 6 = 6$ U = 36	$P - 8 = 20$ P = 28	$5E = 25$ E = 5
$H - 19 = 20$ H = 39	$X + 10 = 5$ X = 50	

-HOW DO YOU KNOW WHEN YOUR TEACHER HAS A CRUSH ON YOU?

"SHE PUTS AN X BY YOUR ANSWERS!"

## FOOD CITY SPECIALS



- How much for 1 litre of milk? \$1.30
- How much for 2kg of tomatoes? \$2.20
- Mrs. Ivan buys 1 packet of tea, 1litre of milk, and a loaf of bread.  
She pays with a \$5 note. How much change should she get?  
Total cost \$4.95 Change = 5 cents
- How much will 2 jars of jam weigh? 250g
- How much will 4 packets of tea weigh? 1000g (1 kg)
- How much for 1/2 kg of tomatoes? 55 cents
- The loaf of bread can be cut into 20 slices.  
How many grams will each slice weigh? 50 grams
- Mrs Ivan arrived home with her new packet of tea. She found she still had half a packet of tea at home. How many grams of tea does she now have?  
375 grams
- Mr Sealy buys 1 dozen eggs, 3kg of apples, and a loaf of bread.  
How much will it cost him? \$10.85

# -MORE MEASUREMENT MIXTURES!

REMEMBER

1000 millimetres = 1 metre  
 1000 metres = 1 kilometre  
 10 millimetres = 1 centimetre  
 100 centimetres = 1 metre

10mm = \_\_\_\_\_ cm  
 1000mm = \_\_\_\_\_ m  
 100cm = \_\_\_\_\_ m  
 1000m = \_\_\_\_\_ km

SHOPPING CENTRE 10km

How many metres to the shopping centre? 10,000m

How many metres in 0.5km? 500m

You run 400m. How much further do you have to run to complete 1km? 600m

You draw a line 5cm long. How many mm is this? 50mm

A farmer is fencing a paddock. The sides 400m, 250m, 125m, 220m.

Approximately how long does his fence need to be? 995m (approx 1km)

REMEMBER

1000g = 1kg kg = kilogram  
 1000kg = 1t t = tonne  
 g = gram

2300g = 2.3 kg  
 4600g = 4.6 kg  
 58 kg = 58,000 g  
 27 kg = 27,000 g  
 2t = 2,000 kg  
 25t = 25,000 kg  
 2t,250kg = 2250 kg

# -WHAT UNITS WOULD YOU USE TO MEASURE;



1 An elephant? tonnes



2 A book? grams



3 Your teacher? kilograms



4 Your canary? grams

5 Your baby sister? kilograms

6 Your pen? grams

7 Your desk? kilograms

8 Your whole class? tonnes

A water tank holds 20kl of water.  
 How many litres is this?  
20,000 litres

A 1.25 litre of coke costs \$1.50  
 How much will 3 bottles cost?  
\$4.50

How many litres of coke are you buying?  
3.75 litres



How many seconds in one minute? 60 seconds

How many minutes in one hour? 60 minute

How many hours in one day? 24 hours

2 days = 48 hours 1 fortnight = 14 days  
 180 minutes = 10800 seconds 52 weeks = 1 year  
 2 weeks = 14 days 1 century = 100 years  
 28 days = 672 hours 1 year = 365 days  
 3 minutes = 180 seconds 1 leap year = 366 days  
 The next leap year is 2008 2012 2016

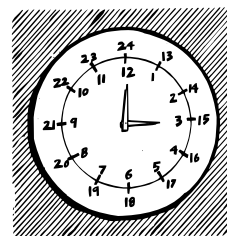
112 ↔ 113  
 114 ↔ 115

# -READING THE TIME!

-WRITE DOWN THE TIME SHOWN ON EACH CLOCKFACE

1 Morning  <u>9:30am</u>	2 Afternoon  <u>12:40pm</u>	3 Evening  <u>10pm</u>
4 Morning  <u>8:10am</u>	5 Afternoon  <u>3:05pm</u>	6 Evening  <u>6:30pm</u>
7 Morning  <u>11:55am</u>	8 Afternoon  <u>1:50pm</u>	9 Evening  <u>6:45pm</u>

Time in Words	Time in Numerals
Ten minutes to nine (morning)	8.50am
Twenty five minutes past six (evening)	6.25pm
Quarter past three (afternoon)	3.15pm
Half past six (evening)	6.30pm
Ten minutes to four (afternoon)	3.50pm
Quarter past twelve (afternoon)	12.15pm
Quarter to nine (morning)	8.45am
Ten past nine (morning)	9.10am



# THIS CLOCK SHOWS 24 HOUR TIME

The inside numerals are for the morning. The outside numerals are for afternoon times. 3pm would be 15.00 hours (fifteen hundred hours)

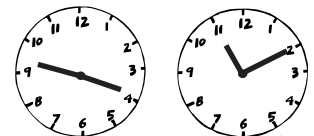
COMPLETE THIS TABLE!

Clock time	24 hour time
6.00am	0600
1.00pm	1300
3.15pm	1515
9.00pm	2100
10.20am	1020
4.30pm	16.30h
11pm	23.00h
6.15am	06.15h
2.25pm	14.25
5.55pm	17.55h

1 How long is it from 6.30pm to midnight?  
5hrs 30min

2 The bus picks you up at 7.55am. You hear that it is 7 minutes late. What time will it arrive?  
8:02am

3 On the clock faces below, draw the time showing 3.47 and 11.10.



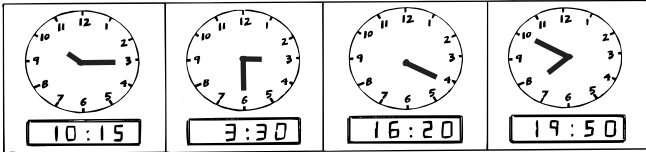
4 Write down other ways of saying:  
 9.30 half past nine  
 1.55 five minutes to two  
 6.10 ten past six

5 When would we use a 24 hour clock time?  
Recording a TV programme  
Bus/Train/Aircraft timetables

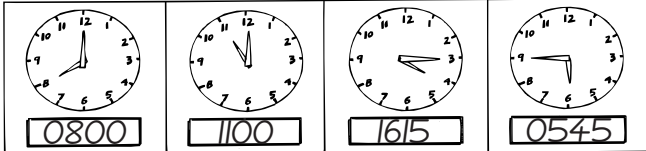
# -WATCH TIME FLY!



Draw in the hands so that each clock shows the same time as the digital clock.



Now transfer these times on to the digital clocks.



- or 2000 2300 0415 1745
- Which unit, one second, one minute, or one hour, would you use to measure the time:
- 1 To mow the lawn? minutes
  - 2 To sharpen your pencil? seconds
  - 3 To get from home to school? minutes
  - 4 To do your maths homework? minutes
  - 5 To wash your hands? seconds
  - 6 To write your name? seconds
  - 7 To play your favourite sport? hours

## JUST A MINUTE

- How many times can you write your name in one minute? how long is your name?
- How far can you run in one minute? how fast were you?
- How many jokes can you tell in one minute? how funny are you?
- How many times can you bounce a ball in one minute? how sporting are you?

BUS TIMETABLE	DEPARTS
PROTRACTORVA	9.15
RULERVILLE	9.20
MATHCHURCH	10.05
PENCIL CROSS	11.15

- When does the bus depart Rulerville? 9:20
- How long is the journey from:  
Rulerville to Mathchurch? 45 minutes
- Protractorva to Pencil Cross? 2 hours
- Are these times likely to be am or pm? am

116 ↔ 117  
118 ↔ 121

# -LEARNING THE CALENDER



A calendar helps us measure time. The units on a calendar are months, weeks, and days.

LEARN THIS POEM...

... AND THESE FACTS

30 days has September,  
April, June and November.  
All the rest have 31, except February alone,  
which has 28 days clear,  
but 29 days each leap year.

1 week = 7 days      365 days = 1 year  
1 year = 12 months      10 years = 1 decade  
52 weeks = 1 year      366 days = 1 leap year

1 JANUARY      2 FEBRUARY      3 MARCH  
4 APRIL      5 MAY      6 JUNE  
7 JULY      8 AUGUST      9 SEPTEMBER  
10 OCTOBER      11 NOVEMBER      12 DECEMBER

- 1 How many days in one year? 365
  - 2 How many months in one year? 12
  - 3 Which months have 30 days? September, April, June, November
  - 4 Which months have 31 days? January, March, May, July, August, October, December
  - 5 Every 4 years is a leap year, where February has 29 days. How many days does February usually have? 28
  - 6 Is 1995 a leap year? No
  - 7 When is the next leap year? \*
  - 8 Write down the dates of Monday during December. \*
  - 9 Write down the day of the week for these dates.  
1st October \*      30th May \*      1st January \*  
11th September \*      7th June \*      15th August \*
  - 10 How many Tuesdays in March? \*
  - 11 How many months have 5 Wednesdays? \*
  - 12 How many weeks between 1st September and 20th October? \*
  - 13 How many years in a decade? 10
  - 14 How many weeks in 1 year? 52
- \* depends on the year you are doing this

1 Avalon swims 3 lengths of a 50m pool.  
How far did she swim? 150m

2 Jason runs 2 laps of the 400m track.  
How far does he run? 800m

3 Hine is 152cm tall. Lenny is 164cm tall.  
How much taller is Lenny? 12cm

4 132cm can be written as 1.32m  
Write these measurements the same way.

148cm 1.48cm  
522cm 5.22cm  
6541cm 65.41cm

\* examples only

5 Name an example when you would use these units to measure

mm \* a pencil  
cm \* a desk  
m \* a field  
km \* a car trip

6 What unit of measure would you use to measure;

The length of a pencil mm  
Your height m  
Auckland to Wellington km  
The thickness of a coin mm  
The length of a rugby field m  
The depth of a swimming pool m  
The length of this book mm

(mm, cm, m, or km)

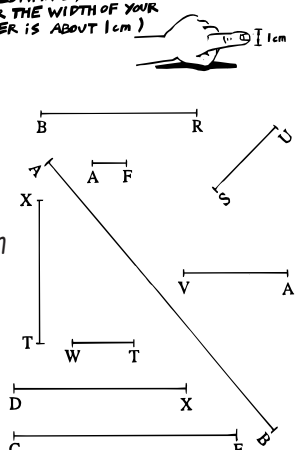
# MEASURING LENGTH

The unit of measure we use most is the centimetre (cm)  
For a more accurate measure we use millimetres (mm)

Estimate each length below in cm. Then measure to see how close your estimate is to the actual length.

(TO HELP YOU ESTIMATE, REMEMBER THE WIDTH OF YOUR FINGER IS ABOUT 1cm)

Length	Estimate	Measure
AB		102mm
DX		50mm
CE		65mm
AF		10mm
QU		204mm
BR		46mm
SU		25mm
XT		40mm
VA		30mm
WT		18mm



The perimeter of a shape is found by adding the length of each side.  
Find the perimeters of these shapes.

Triangle with vertices A, D, E. Side lengths: AD = 50mm, ED = 50mm, EA = 50mm. Perimeter = 150mm.

Rectangle with vertices T, I, M, E. Side lengths: TI = 26mm, IM = 50mm, ME = 26mm, ET = 50mm. Perimeter = 152mm.