



# TeeJay Maths

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Second Edition published by TeeJay Publishers - May 2017

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Printed by :-

Elanders Ltd  
Merlin Way  
New York Business Park  
North Tyneside NE27 0QG  
Registered in England number 3788582  
<http://www.elanders.com/uk>

# Year 5 Textbook Book 5

Produced by members of the TeeJay Writing Group.

*T Strang, J Geddes and J Cairns.*

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TEXTBOOK

== 5 ==

# National Curriculum TextBook 5

- This book covers every outcome of the **Year 5** course, as laid out in the **National Curriculum England Framework Document**, (September 2013).
- There are no A and B exercises. The book covers the entire **Year 5 course** without the teacher having to pick and choose which questions to leave out and which exercises are important. They all are !
- The book follows on directly from **TeeJay's Year 4 Book** and includes revision and consolidation of the work covered in the Year 4 course.
- The **Year 5 Book** contains an 8 page "**Chapter Zero**" which primarily revises every topic from the Year 4 course and can be used as a diagnostic tool. This could be followed by **TeeJay's** diagnostic assessments \* of the work covered in our Year 4 book.
- It also contains a **Chapter 19** which revises every topic from the **Year 5** course, prior to an end of year assessment.
- Non-calculator skills are emphasised and encouraged throughout the book.
- Each chapter has a "**Revisit - Review - Revise**" exercise as a summary.
- **Homework\***, mirroring exercise by exercise, the topics in this book, is available as a photocopiable pack.
- **TeeJay's Assessment Pack\*** for Year 5 work, is also available as a photocopiable pack, and can be used topic by topic or combined to form a series of Year 5 Cumulative Tests. It also contains a series of longer assessments covering the Outcomes as laid out in the **National Curriculum England framework document** (Sept 2013).

We make no apologies for the multiplicity of colours used throughout the book, both for text and in diagrams - we feel it helps brighten up the pages !!

**T Strang, J Geddes, J Cairns**

*(June 2014)*

\* Available for purchase separately.

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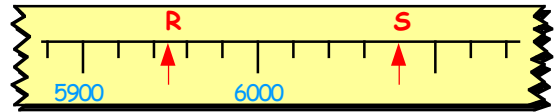
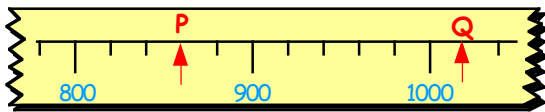
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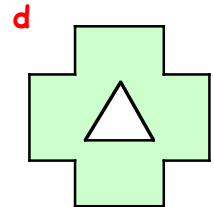
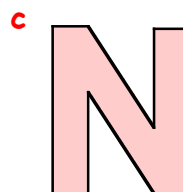
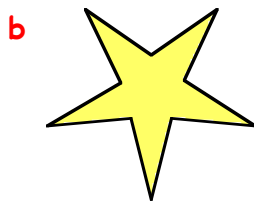
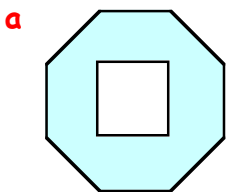
# Chapter 0

## Revision - Year 4

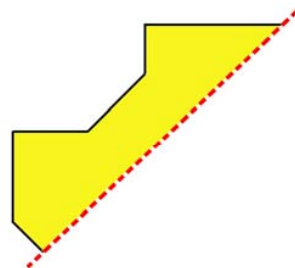
1. Write out the number 8056 fully **in words**.
2. Write the number seven thousand four hundred and one **using digits**.
3. Rearrange the numbers given below in order, starting with the **smallest** :-  
6051 7040 7001 6688 7018 7051.
4. What numbers are represented by **P, Q, R** and **S** on the given scales ?



5. What number lies **halfway** between 3200 and 7200 ?
6. Write down the number that is 3000 **less than** 8100.
7. Write down the next two numbers each time :-  
a 975, 970, 965, ..., ...      b 480, 500, 520, ..., .....  
c 7100, 6800, 6500, ..., ...      d 8000, 6500, 5000, ..., ...
8. a Change to number form :-      (i) XXVI      (ii) LXIX      (iii) XCIV.  
b Change to Roman numerals :-      (i) 29      (ii) 57      (iii) 99.
9. How many lines of symmetry do each of these shapes have ?



10. **Trace** or **copy** this shape and draw the other half so the red dotted line is a line of symmetry.



11. Set down and then work out :-

a 
$$\begin{array}{r} 6486 \\ + 2827 \\ \hline \end{array}$$

b  $6327 - 1853$

c 
$$\begin{array}{r} 7896 \\ + 999 \\ \hline \end{array}$$

d 
$$\begin{array}{r} 10000 \\ - 2475 \\ \hline \end{array}$$

12. From London to New York is 3458 miles.  
From London to Bangkok is 5921 miles.



- a How much further is it from London to Bangkok than from London to New York ?  
b If Nikki flew from Bangkok to London, then on to New York, how far would she have flown altogether ?

13. Do the following **mentally** (no working should be seen) :-

- a  $49 + 35$                       b  $349 + 99$                       c  $6300 + 3500$                       d  $81 - 18$   
e  $4800 - 650$                       f  $10\,000 - 6400$                       g  $3146 + 2999$                       h  $5000 - 19$ .

14. Round to the :-

- a nearest **10** :-                      (i) 73                      (ii) 297                      (iii) 625.  
b nearest **100** :-                      (i) 549                      (ii) 2951                      (iii) 9805.  
c nearest **1000** :-                      (i) 3847                      (ii) 8099                      (iii) 6500.

15. Change these times to **24 hour** format :-

- a 7.40 am                      b 11.10 at night                      c 20 to 5 in the afternoon.

16. Write the following in **12 hour** format :- (remember to use **am** or **pm**)

- a 0855                      b 1350                      c 1135                      d 2240.

17. How many **minutes** are there between :-

- a 8 pm and 9.30 pm                      b noon and 1310                      c 1555 and 1640 ?

18. a How many days are there in :-                      (i) April                      (ii) December ?

b How many months are there in 5 years ?

c How many days are there from the 28th of March to the 9th of April, including both dates ?



19. **Copy and complete** :-

- a  $9 \times 6 = \dots$                       b  $5 \times 11 = \dots$                       c  $8 \times 8 = \dots$   
d  $10 \times 12 = \dots$                       e  $7 \times 9 = \dots$                       f  $2 \times 5 \times 7 = \dots$ .

20. What numbers are missing ?

- a  $7 \times \dots = 49$                       b  $\dots \times 6 = 300$                       c  $\dots \times 8 = 72$   
d  $\dots \times 11 = 110$                       e  $9 \times \dots = 108$                       f  $\dots \times 5 = 500$ .



21. Copy and complete these multiplications :-

$$\begin{array}{r} a \quad 65 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} b \quad 207 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} c \quad 387 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} d \quad 203 \\ \times 10 \\ \hline \end{array}$$

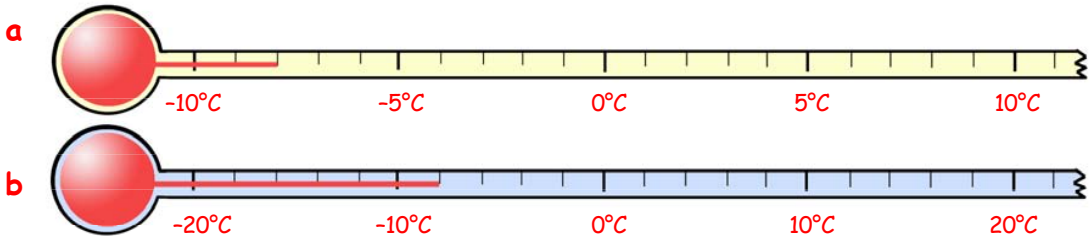
$$\begin{array}{r} e \quad 178 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} f \quad 345 \\ \times 6 \\ \hline \end{array}$$

22. Lucy lives in Nottingham, which is 129 km by road from London. She drove back and forwards 4 times last month. How far in total did she drive ?



23. State what temperatures are represented on these thermometers :-



24. What is the temperature :-

a 10°C up from 3°C

b 8°C down from 2°C

c 5°C up from -6°C

d 3°C down from -7°C ?

25. Which integer is halfway between :-

a 20 and 28

b -30 and 30

c -8 and -2 ?

26. Copy and complete :-

$$a \quad 5 \overline{)35}$$

$$b \quad 7 \overline{)84}$$

$$c \quad 8 \overline{)112}$$

$$d \quad 6 \overline{)138}$$

$$e \quad 9 \overline{)207}$$

$$f \quad 4 \overline{)264}$$

$$g \quad 8 \overline{)256}$$

$$h \quad 10 \overline{)250}$$

27. Write in the form  $6 \overline{)72}$  and work out the answer :-

$$a \quad 91 \div 7$$

$$b \quad \frac{265}{5}$$

$$c \quad 144 \text{ divided by } 8$$

$$d \quad 6 \text{ into } 78$$

$$e \quad \frac{196}{4}$$

$$f \quad 135 \text{ divided by } 9$$

$$g \quad 10 \text{ into } 4700$$

$$h \quad 360 \div 8.$$

28. Four new tyres cost £188. What is the cost of 1 tyre ?

29. When Bill and his 5 friends shared a pools win, they **each** got £275.  
How much did the group win in total ?

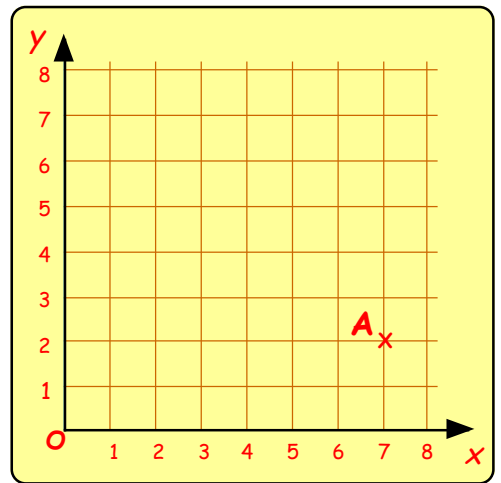
30. **Copy** the coordinate grid shown opposite.

a Write down the coordinates of point **A**.

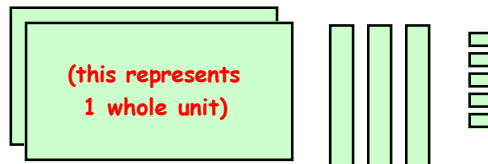
b Plot the 3 points **P**(0, 2), **Q**(1, 6) and **R**(5, 7).

**S** is a point to be put on the grid so that figure **PQRS** is a **rhombus**.

c On your diagram plot the point **S** and write down its coordinates.



31. What decimal number is represented by this diagram ?



32. Draw diagrams (similar to Question 31) to represent :- a 3.2 b 1.43.

33. In the decimal number 4.96, what does the :-

a 9 represent b 4 represent c 6 represent ?

34. Write down the number that is :-

a 0.5 up from 7.5 b 0.03 down from 2.42 c  $\frac{7}{10}$  up from 5.4.

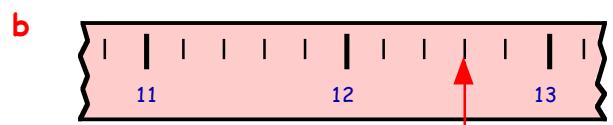
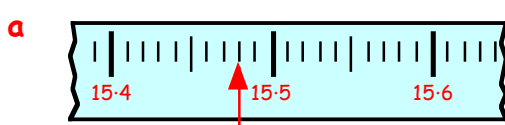
35. What number is **halfway** between :-

a 0.2 and 0.8 b 6.6 and 7.0 c 0.34 and 0.38 ?

36. a Arrange in order, **smallest** first :- 3.9, 3.28, 3.67, 4, 3.3, 3.23.

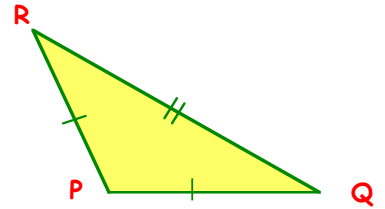
b Arrange in order, **largest** first :- 5.77, 5.8, 6.62, 6.18, 7.9, 6.05.

37. To what decimal numbers are the arrows pointing ?

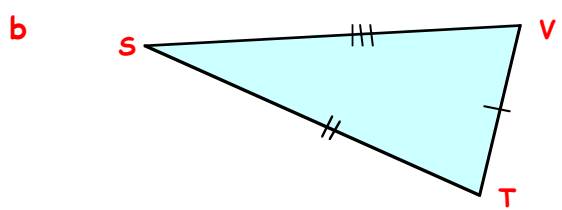
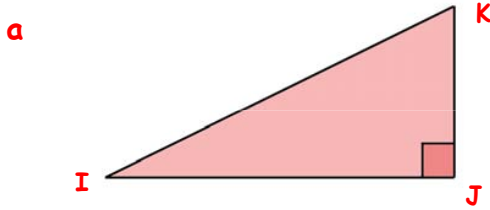


38. This triangle can be described as follows :-

Triangle PQR is an **obtuse angled isosceles triangle**.



Name and describe both of these triangles fully :-



39. Round the following to **the nearest whole number** :-

a 9.3

b 11.8

c 32.51

d 88.45.

40. Do the following **mentally** (no working) :-

a  $3.6 + 8.2$

b  $11.3 + 6.47$

c  $9.6 - 3.4$

d  $0.92 - 0.88$ .

41. **Copy** the following and find :-

a 
$$\begin{array}{r} 3.82 \\ + 2.49 \\ \hline \end{array}$$

b 
$$\begin{array}{r} 35.54 \\ + 6.72 \\ \hline \end{array}$$

c 
$$\begin{array}{r} 10.8 \\ - 6.3 \\ \hline \end{array}$$

d 
$$\begin{array}{r} 15.65 \\ - 9.87 \\ \hline \end{array}$$

e  $£3.87 + £4.95$

f  $£24.48 + £5.32$

g  $£5.63 - £2.87$

h  $15.05 - 2.95$

i  $45.42 - 9.73$

j  $30 - 2.45$

k  $85.7 - 38.49$

l  $100 - 13.99$ .

42. Nadia buys a denim jacket for £27.49 and a pair of jeans for £19.99. How much change should she receive from a £50 note ?



43. a Write down the meaning of the term **regular polygon**.

b Name 6 different types of polygons.

44. True (T) or False (F) ?

a A rectangle is made up of 2 identical isosceles triangles.

b The opposite angles of a rhombus are equal.

c A kite has 2 pairs of equal sides.

d A parallelogram has at least 1 line of symmetry.

e A square can only fit onto itself 4 times, allowing for turning over and rotating.

45. Write down 2 ways in which a **rectangle** is different from a **parallelogram**.

46. Name the quadrilateral with 2 lines of symmetry but with no right angles.

47. Write each of these amounts using a decimal point :-

a



b



c



48. Find :-

a  $\begin{array}{r} \pounds 39.56 \\ + \pounds 25.48 \\ \hline \end{array}$

b  $\begin{array}{r} \pounds 172.69 \\ - \pounds 83.45 \\ \hline \end{array}$

c  $\pounds 37.43 - \pounds 28.69$

d  $\pounds 137.46 + \pounds 62.54$ .

49. a Nina spent £7.89 and gave a £20 note. How much change did she receive ?

b Nigel got £6.95 change from a £10 and a £20 note. How much had he spent ?

50. How many :-

a minutes in 5 hours

b seconds in 3 minutes

c weeks in 2 years ?

51. How many days are there in :-

a March

b August

c November ?

52. Change each of these to **minutes and seconds** :-

a 100 secs

b 360 secs

c 1000 secs.

53. Change each of these to **hours and minutes** :-

a 70 mins

b 210 mins

c 600 mins.

54. Change each of these from **minutes and seconds** to **seconds** :-

a 2 mins 15 secs

b 3 mins 40 secs

c 5 mins 55 secs.

55. Change each of these from **hours and minutes** to **minutes** :-

a 2 hrs 50 mins

b 6 hrs 1 min

c 20 hrs 20 mins.

56. Copy and complete :-

a  $\begin{array}{r} 3 \text{ mins } 25 \text{ secs} \\ + 4 \text{ mins } 30 \text{ secs} \\ \hline \end{array}$

b  $\begin{array}{r} 9 \text{ mins } 55 \text{ secs} \\ - 6 \text{ mins } 20 \text{ secs} \\ \hline \end{array}$

c  $\begin{array}{r} 4 \text{ hrs } 10 \text{ mins} \\ - 2 \text{ hrs } 50 \text{ mins} \\ \hline \end{array}$

57. Write down the answer to each of these :-

- |   |                  |   |                  |   |                 |   |                |
|---|------------------|---|------------------|---|-----------------|---|----------------|
| a | $3250 \times 10$ | b | $43 \times 100$  | c | $7 \times 1000$ | d | $820 \div 10$  |
| e | $9000 \div 100$  | f | $3000 \div 1000$ | g | $8 \times 9$    | h | $15 \times 10$ |
| i | $84 \div 12$     | j | $110 \div 11$    | k | $144 \div 9$    | l | $220 \div 11$  |

58. Polythene CD covers come in boxes of 100.

A company bought in 25 boxes.

How many covers was that ?



59.



A football team consists of 11 players.

12 teams entered a football tournament.

How many players is that altogether ? (*Forget subs*).

60. In the "olden" days, there were 12 old pennies to an old shilling.

How many shillings would I have if I had 156 pennies ?



61. Change :-

- |   |                  |   |                  |   |                         |
|---|------------------|---|------------------|---|-------------------------|
| a | 5 cm 6 mm to mm  | b | 2000 mm to cm    | c | 125 mm to cm & mm       |
| d | 3 m 75 cm to cm  | e | 560 cm to m & cm | f | 2 km 900 m to m         |
| g | 8250 m to km & m | h | 3 m to mm        | i | $2\frac{1}{4}$ km to m. |

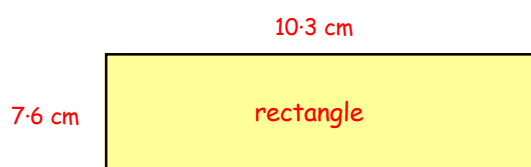
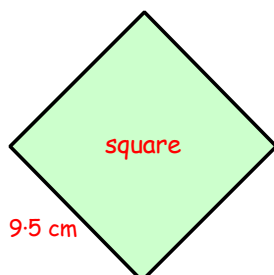
62. Change :-


- |   |                       |   |                   |   |                              |
|---|-----------------------|---|-------------------|---|------------------------------|
| a | 3 litres 800 ml to ml | b | 5200 ml to L & ml | c | $4\frac{1}{2}$ litres to ml. |
|---|-----------------------|---|-------------------|---|------------------------------|

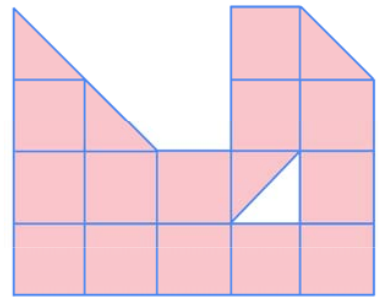
63. Change :-

- |   |                 |   |                  |   |                          |
|---|-----------------|---|------------------|---|--------------------------|
| a | 5 kg 650 g to g | b | 9050 g to kg & g | c | $10\frac{1}{4}$ kg to g. |
|---|-----------------|---|------------------|---|--------------------------|

64. Which of these two shapes has the bigger **perimeter** and by how much is it bigger ?



65. Write down the shaded area of this shape in  $\text{cm}^2$ . 



66. Simplify each of these fractions as far as possible :-

a  $\frac{10}{15}$       b  $\frac{12}{16}$       c  $\frac{5}{35}$       d  $\frac{28}{35}$ .

67. Find :-

a  $\frac{1}{6}$  of 42      b  $\frac{2}{3}$  of 120      c  $\frac{7}{8}$  of 1600      d  $\frac{2}{9}$  of 36.

68. Find :-

a  $\frac{1}{7} + \frac{3}{7}$       b  $\frac{5}{8} - \frac{1}{8}$       c  $2\frac{1}{10} + 4\frac{3}{10}$       d  $6\frac{3}{4} - 1\frac{1}{4}$ .

69. Write as a decimal :- a  $\frac{1}{4}$       b  $\frac{77}{100}$       c  $\frac{9}{10}$ .

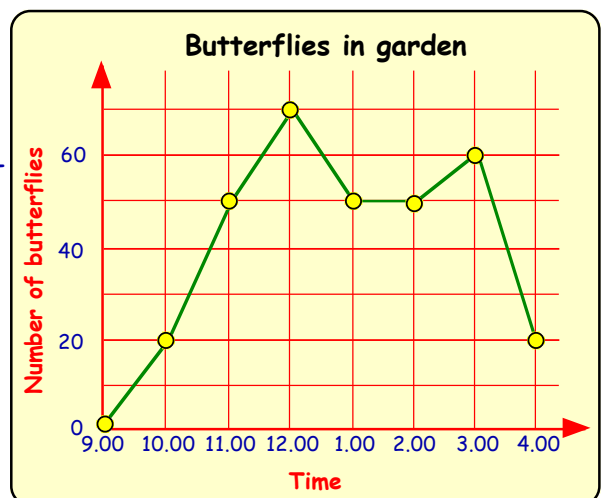
70. A group of children was asked to list the first thing that came into their heads when asked the question - "What would you take to the beach with you?"

bucket/spade	ball	costume	bucket/spade	towel	costume
bucket/spade	ball	bucket/spade	ball	bucket/spade	suncream
towel	costume	bucket/spade	towel	ball	costume
bucket/spade	ball	ball	bucket/spade	ball	towel
suncream	costume	bucket/spade	ball	bucket/spade	costume

- a Draw a frequency table to represent the above information.  
 b Now draw a neat labelled bar chart.

71. A lady made a note of the number of butterflies in her garden one day over a 7 hour period from 9 in the morning.

- a How many butterflies were there at :-  
 (i) 10.00      (ii) 11.00 ?  
 b At what time was there the largest number of butterflies present ?  
 c Between which two times did the number of butterflies appear to remain unchanged ?  
 d Why do you think the number began to drop off quickly at 4 o'clock ?



# Chapter 1

## Whole Numbers

### Place Values

Example :-

In the number **346785**,

100000	10000	1000	100	10	1
3	4	6	7	8	5

the **3** stands for three hundred thousand     **300 000**  
the **4** stands for forty thousand     **40 000**  
the **6** stands for six thousand     **6 000**  
the **7** stands for seven hundred     **700**  
the **8** stands for eight tens     **80**  
the **5** stands for five units     **5**

**346 785**

Understand place value for numbers up to 1 000 000.

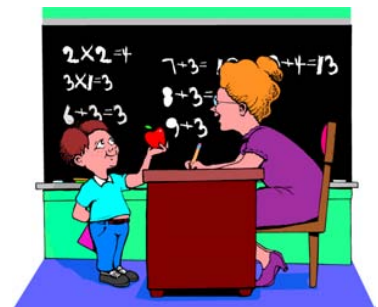


Three hundred and forty six thousand, seven hundred and eighty five.  
346 785 ✓



### Exercise 1

- What do the following **digits** stand for in the number 487 293 :-  
a 2                                      b 7                                      c 8                                      d 4 ?
- What does the **7** stand for in each of these numbers :-  
a 58740                                  b 35279                                  c 647900                                  d 740601 ?
- Write the following numbers out fully **in words** :-  
a 4080                                      b 21900                                      c 71350                                      d 235080  
e 703460                                      f 870000                                      g 493070                                      h 750062.
- Write the following numbers **using digits** :-  
a four thousand, two hundred and one  
b seventeen thousand and fifty  
c two hundred and thirty thousand and four  
d four hundred and seven thousand and eighty  
e one hundred thousand and seven  
f five hundred and sixty thousand and forty.
- Put the following sets of numbers in order, **smallest first** :-  
a 7068, 6876, 7086, 6786, 7008, 7080, 6867.  
b 100870, 99924, 100086, 98999, 90887, 100076.



6. Write down the number that is :-

a 80 more than 290

c 900 more than 290

e 4000 more than 8300

g 50 000 more than 70 000

i 700 000 more than 250 000

b 70 less than 3240

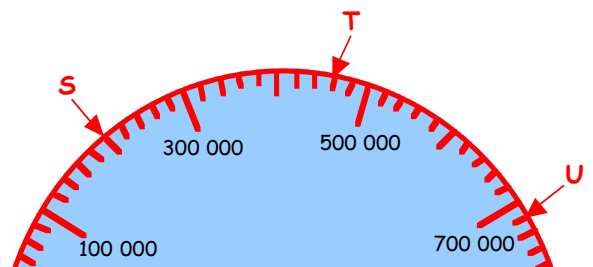
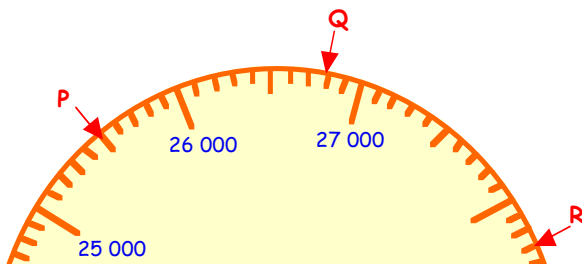
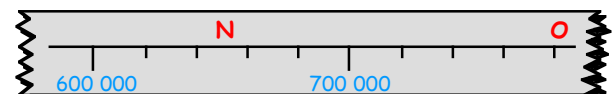
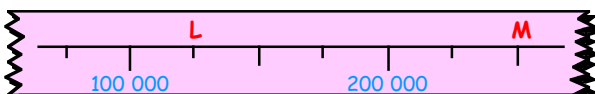
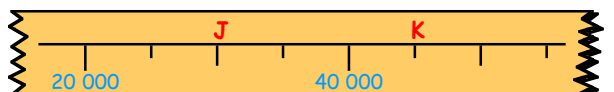
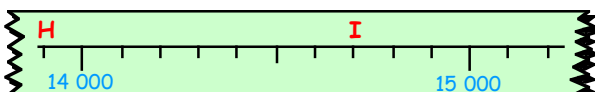
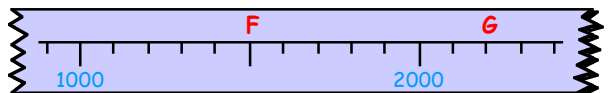
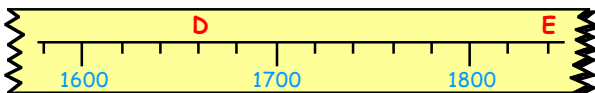
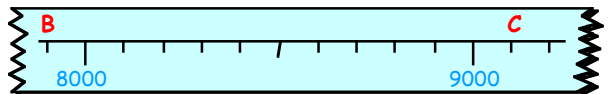
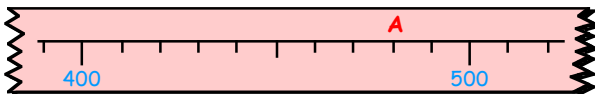
d 500 less than 1200

f 6000 less than 12 200

h 30 000 less than 120 000

j 600 000 less than 1 000 000.

7. Look at the following scales. To what numbers do the letters A, B, C, ... point ?



8. What number lies halfway between :-

a 970 and 980

c 44 000 and 44 500

e 630 500 and 830 500

b 3400 and 3500

d 820 000 and 880 000

f 900 000 and 1 000 000 ?

9. Write out in figures :-

a 1 million

b  $\frac{1}{2}$  million

c  $\frac{1}{4}$  million

d  $\frac{3}{4}$  million.

10. The Dukes from St. Annes won  $98\frac{1}{2}$  thousand pounds in the Euro lottery. That was the largest amount ever won in the North West.

a Write out this amount of money in full, in figures.

b Now write it out fully, using words.





## Going up by 10, 100, 1000, 10 000 & 100 000

Numbers going up by  
10, 100, 1000,  
10 000 & 100 000.

Look at these patterns :-

a 50, 60, 70, 80, ....

b 300, 400, 500, ....

c 4000, 5000, 6000 ....

d 50 000, 60 000, 70 000 ....

e 100 000, 200 000, 300 000 ....

Numbers go up in **10's**. Next number **90**.

Numbers go up in **100's**. Next number **600**.

Numbers go up in **1000's**. Next number **7000**.

Numbers go up in **10000's**. Next number **80 000**.

Numbers go up in **100 000's**. Next number **400 000**.

## Exercise 2

1. Write down the **next 2 numbers** in each of these patterns :-

a 80, 90, 100, 110, ..., ...

b 240, 230, 220, 210, ..., ...

c 600, 700, 800, 900, ..., ...

d 2200, 2100, 2000, ..., ...

e 7000, 8000, 9000, ..., ...

f 23 000, 22 000, 21 000, ..., ...

g 40 000, 50 000, 60 000, ..., ...

h 150 000, 140 000, 130 000, ..., ...

i 600 000, 700 000, 800 000, ..., ...

j 400 000, 300 000, 200 000, ..., ...

2. Find the missing numbers :-

a 45, 55, ..., 75, ...

b 112, 102, ..., 82, 72, ...

c 320, ..., 520, 620, ..., 820

d 930, 920, ..., 900, ..., 880

e ..., 2400, 3400, ..., 5400

f 9100, 8100, ..., 6100, ...

g 37 000, ..., 57 000, ..., 77 000

h 99 000, 89 000, ..., 69 000, ...

i 1240, 1230, ..., 1210, ...

j 5380, 5390, ..., 5410, ...

k 3620, ..., 3420, 3320, ..., 3120

l 7125, 8125, ..., 10 125, ...

m 50 600, ..., 48 600, 47 600

n ..., 43 910, 44 910, 45 910

o 641 000, ..., 441 000, 341 000

p 700 000, 800 000, 900 000 ....

## Rounding to the nearest 10, 100, 1000, 10 000 & 100 000

Be able to round a number to the nearest 10, 100, 1000, 10000 and 100000.

In Year 4, you learned how to round a number to the nearest **10**, **100** and **1000**.

A few examples are shown to remind you.

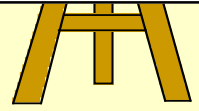
In the same way :-

**Revision of rounding to the nearest 10, 100, 1000.**

$$157 \rightarrow 160 \quad (10)$$

$$2374 \rightarrow 2400 \quad (100)$$

$$9488 \rightarrow 9000 \quad (1000)$$



**To round to the nearest 10 000**

- if it is a 0, 1, 2, 3 or 4 -
- if it is a 5, 6, 7, 8 or 9 -

look at the **thousands** digit :-

leave the 10 000's digit as it is.  
round the 10 000's digit up by one.

$$137\,650 \rightarrow 140\,000$$

**To round to the nearest 100 000**

- if it is a 0, 1, 2, 3 or 4 -
- if it is a 5, 6, 7, 8 or 9 -

look at the **ten thousands** digit :-

leave the 100 000's digit as it is.  
round the 100 000's digit up by one.

$$642\,486 \rightarrow 600\,000$$

### Exercise 3



1. Round to the nearest 10 :-

- |       |        |        |           |
|-------|--------|--------|-----------|
| a 69  | b 34   | c 183  | d 375     |
| e 429 | f 2766 | g 9804 | h 25 678. |

2. Round to the nearest 100 :-

- |          |          |          |            |
|----------|----------|----------|------------|
| a 784    | b 777    | c 4656   | d 9480     |
| e 26 284 | f 29 850 | g 16 050 | h 212 450. |

3. Round to the nearest 1000 :-

- |          |           |           |            |
|----------|-----------|-----------|------------|
| a 8700   | b 48 200  | c 37 960  | d 91 501   |
| e 83 960 | f 357 600 | g 436 492 | h 799 984. |

4. Round to the nearest 10 000 :-

- |          |           |           |            |
|----------|-----------|-----------|------------|
| a 9000   | b 25 000  | c 32 719  | d 62 090   |
| e 87 500 | f 122 300 | g 246 700 | h 989 699. |

5. Round to the nearest 100 000 :-

- |           |           |           |            |
|-----------|-----------|-----------|------------|
| a 230 000 | b 490 000 | c 601 700 | d 872 200  |
| e 599 500 | f 750 000 | g 649 999 | h 919 888. |

## Using Rounding to Estimate Answers

It is possible to "MENTALLY" estimate the answer to a question by rounding the numbers to "1 figure" accuracy first.

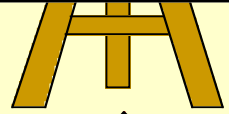
Examples :-

$$\begin{array}{l} 79 \times 42 \\ \text{is approximately} \\ \mathbf{80 \times 40} \\ \approx 3200 \end{array}$$

$$\begin{array}{l} 7982 \div 396 \\ \text{is approximately} \\ \mathbf{8000 \div 400} \\ \approx 20 \end{array}$$




" $\approx$ " approximately equal to.

Be able to estimate an answer to a question using rounding.



Make sure you know your tables!

### Exercise 4

- The answer to  $62 \times 78$  is either {486, 4836 or 48 036}. (no calculator !)  
By rounding  $62 \times 78 = 60 \times \dots = \dots$ , decide which of the 3 answers has to be the correct one.
- Round your numbers before multiplying. Use this to decide which of the 3 given answers is most likely to be the correct one :-
  - $39 \times 61$  Choice of {237.9, 2379 or 23 799}
  - $178 \times 18$  Choice of {3204, 32 440 or 32 004}
  - $614 \times 57$  Choice of {3498, 34 998 or 349 908}
  - $293 \times 116$  Choice of {323 618, 3988, or 33 988}
  - $283\,648 \div 277$  Choice of {10 240, 1024 or 104}.
- Round each number to **1 figure accuracy**, then give an estimate for :-
  - $71 \times 28$
  - $37 \times 52$
  - $88 \times 81$
  - $397 \times 61$
  - $304 \times 78$
  - $785 \times 182$
  - $796 \div 18$
  - $4031 \div 37$
  - $5918 \div 192$
  - $62\,128 \div 302$
  - $18\,096 \div 188$
  - $99\,909 \div 2347$ .
- A tin of green pea soup weighs 415 grams.  
What is the **approximate** weight of a carton containing 36 tins ?  

  -  A company charges a Council £110 624 for 208 laptops.  
**Approximately**, what was the cost of a laptop ?
  - On average, a coach driver travels 38 000 miles per year at work.  
If a bus company employs 62 drivers, what will be the **approximate** total mileage travelled by these drivers ?  


## Roman Numbers

Be able to write numbers to 1000 (and beyond) using Roman Numerals.

In Year 4, you learned how to write all the numbers from 1 to 100 using the Roman Numerals **I**, **V**, **X**, **L** and **C**.



Centurion

1	I	21	XXI	41	XLI	61	LXI	81	.....
2	II	22	XXII	42	....	62	LXII	82	LXXXII
3	III	23	....	43	XLIII	63	LXIII	83	LXXXIII
4	..	24	XXIV	44	XLIV	64	....	84	LXXXIV
5	V	25	XXV	45	...	65	LXV	85	.....
6	..	26	....	46	XLVI	66	LXVI	86	LXXXVI
7	VII	27	XXVII	47	XLVII	67	LXVII	87	LXXXVII
8	....	28	XXVIII	48	XLVIII	68	LXVIII	88	LXXXVIII
9	IX	29	....	49	....	69	....	89	LXXXIX
10	X	30	XXX	50	.	70	LXX	90	..
11	..	31	XXXI	51	LI	71	LXXI	91	XC I
12	XII	32	XXXII	52	LII	72	LXXII	92	XCII
13	....	33	XXXIII	53	....	73	.....	93	XCIII
14	XIV	34	....	54	LIV	74	LXXIV	94	....
15	XV	35	XXXV	55	LV	75	LXXV	95	..
16	....	36	XXXVI	56	...	76	LXXVI	96	XCVI
17	XVII	37	.....	57	LVII	77	LXXVII	97	XCVII
18	.....	38	XXXVIII	58	LVIII	78	LXXVIII	98	XCVIII
19	XIX	39	....	59	LIX	79	....	99	....
20	XX	40	..	60	..	80	LXXX	100	C

I'm playing X-pin bowling



As a class, try to work out the Roman symbols used to represent the missing numbers from the above table.

### Rules :-

Here are some of the basic rules used when writing Roman symbols :-

1. A symbol can only appear 3 times at most - **XXXX** not allowed.
2. Only **one** smaller symbol can appear in front of a bigger one - **IIX** not allowed.
3. Only **I**, **X** and **C** can appear in front of a larger symbol - **LC** and **VL** not allowed.
4. Only subtract 1 type of smaller symbol at a time - **IXL** not allowed.
5. When a smaller symbol is in front of a larger one, the larger symbol cannot be **more than 10 times** bigger than the smaller one - **VC** and **IL** not allowed.

### Exercise 5

1. a Use **Rule 1** to decide what to use instead of **XXXX** for the number 40.  
 b Use **Rule 2** to decide what to use instead of **IIX** for the number 8.  
 c Use **Rule 3** to decide what to use instead of **LC** and **VL** for 50 and 45.

- Use **Rule 4** to decide what to use instead of **IIXL** for the number 38.
  - Use **Rule 5** to decide what to use instead of **VC** and **IL** for 95 and 49.



- You should be able to write the numbers from 100 to 300 using the Roman symbols **I, V, X, L** and **C**. (You might like to try writing them **all** out).

What are the Roman Numerals used to write the number :-

- 101
  - 110
  - 125
  - 150
  - 155
  - 188
  - 190
  - 200
  - 205
  - 230
  - 239
  - 249
  - 250
  - 275
  - 290
  - 299?
- What numbers do these Roman symbols represent :-

- CIII
- CIX
- CXV
- CXXVI
- CXXXIX
- CLXVI
- CLXXX
- CCXX
- CCXLV
- CCLIX
- CCLXXVI
- CCXCV?

We now introduce the two new Roman Symbols - **D = 500** and **M = 1000**.

Using the symbols **I, V, X, L, C, D** and **M**, it is possible to write any number up to **5000**.

Here are a few examples of numbers up to 1000 :-

- |   |                |   |               |   |              |   |              |
|---|----------------|---|---------------|---|--------------|---|--------------|
| a | 400 = CD       | b | 465 = CDLXV   | c | 490 = CDXC   | d | 524 = DXXIV  |
| e | 549 = DXLIX    | f | 600 = DC      | g | 622 = DCXXII | h | 659 = DCLIX  |
| i | 780 = DCCCLXXX | j | 799 = DCCXCIX | k | 945 = CMXLV  | l | 999 = CMXCIX |

As a class, study how the above Roman Numbers were formed and try the following :-

- You should be able to write the numbers from 300 to 1000 using the Roman symbols **I, V, X, L, C, D** and **M**. (You might like to try writing them **all** out !!!!).



What Roman Numerals are used to write the number :-

- 360
  - 401
  - 430
  - 450
  - 480
  - 520
  - 570
  - 635
  - 684
  - 699
  - 760
  - 845
  - 869
  - 937
  - 966
  - 995?
- What numbers do these Roman symbols represent :-
- CCCLXXX
  - CDXLV
  - CDXCI
  - DXXVI
  - DL
  - DCX
  - DCCCL
  - DCCCXC
  - CMX
  - CMLVI
  - CMLXXI
  - CMXCI?
- 888** is the number under 1000 that needs most symbols - What is it in Roman form ?

- Obviously, **MM** stands for 2000, **MMM** stands for 3000. Investigate the Roman Numerals up to 4000 and find out the symbols for 5000, 10000, 50000 and 100000.

# The 3 9's

## Revisit - Review - Revise

- Write the following numbers out fully in words :-  
a 7030                      b 93 700                      c 402 619                      d 370 004.
- Write the following numbers using digits :-  
a Nineteen thousand, one hundred and two  
b Six hundred and three thousand seven hundred and twelve.
- Write down the number that is :-  
a 8000 more than 12 200                      b 240 000 less than 600 000.
- Find the missing numbers :-  
a 730, 720, ..., 700, ..., 680                      b 28 000, ..., ..., 31 000  
c 21 800, ..., 19 800, ....                      d 1 000 000, ..., 800 000, ....
- a Round to the nearest 1000 :-                      (i) 5548                      (ii) 29 672                      (iii) 328 299.  
b Round to the nearest 10 000 :-                      (i) 38 420                      (ii) 146 800.  
c Round to the nearest 100 000 :-                      (i) 481 000                      (ii) 929 999.
- a Round both numbers to the nearest 10, then estimate :-                       $369 + 395$ .  
b Round both numbers to the nearest 100, then estimate :-                       $7682 - 1718$ .  
c Round both numbers to the nearest 1000, then estimate :-                       $17\ 840 + 6399$ .
- Cheryl bought two vintage cars - a classic at £43 560 and a convertible costing £38 420.  
Round both these prices to the nearest £10 000 and find an approximate answer for the total amount she paid for the cars.  

- The population of Cardiff in the spring of 2014 was 359 731.  
Round this number to the nearest hundred thousand.  

- What Roman Numerals are used to write the number :-  
a 105                      b 210                      c 325                      d 450                      e 655                      f 988 ?
- What numbers do these Roman symbols represent :-  
a CCLXX                      b CDXLVI                      c DCXCIV                      d DCCCXX                      e CMXXV                      f CMLIV ?