

GCSE MATHS

WHOLE NUMBERS

✓ What are Whole Numbers
✓ Place Value
✓ Addition
✓ Subtraction
✓ Multiplication
✓ Division
✓ BIDMAS or BODMAS
✓ Word Problems

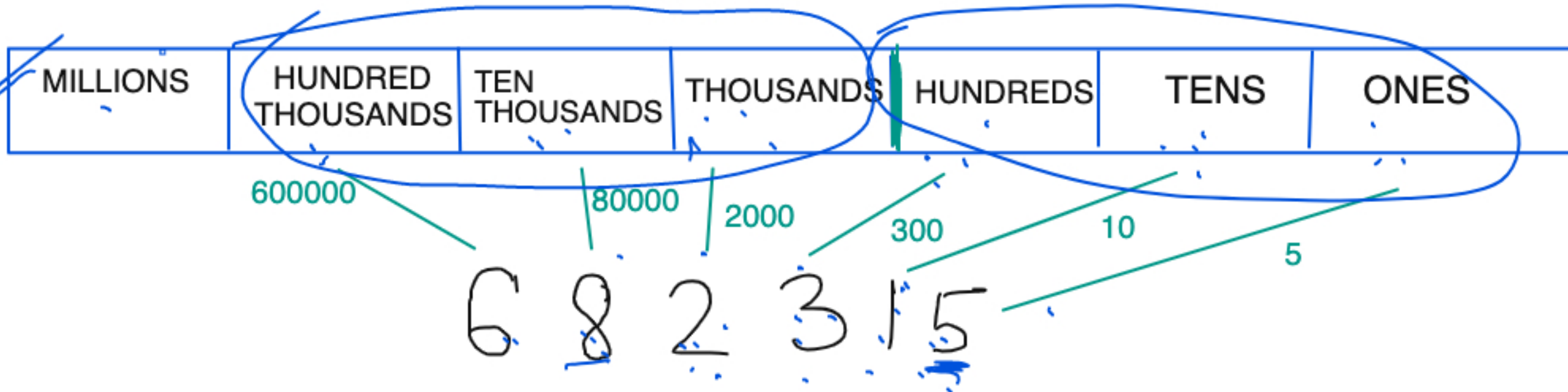


WHOLE NUMBERS →

Whole Numbers are counting numbers starting from Zero

PLACE VALUE

Place value is the position of a digit in a number



SIX HUNDRED AND EIGHTY TWO THOUSAND
THREE HUNDRED AND FIFTEEN

80.
2000

Q1 a) Write the place value of 1, 5, 8 and 2 in the number below:-

9 3 5 8 2 1 7

✓ Place Value of 1:

✓ Place Value of 5:

✓ Place Value of 8:

✓ Place Value of 2:

b) Write the above numbers in words

✓ Q2 Write the following numbers as digits

a) Sixty two thousand seven hundred and fifty two

✓ b) Two hundred and Eleven Thousand and Sevent Two

Q1 a) Write the place value of 1, 5, 8 and 2 in the number below:-

9 3 5 8 2 1 7
Place Value of 1: 10 (1 tens)
Place Value of 5: 50000 (fifty thousands)
Place Value of 8: 8000 (eight thousands)
Place Value of 2: 200 (two hundreds)

b) Write the above numbers in words

Nine Millions Three hundred and fifty eight thousand Two Hundred and Seventeen

Q2 Write the following numbers as digits

a) Sixty two thousand seven hundred and fifty two

62,752

b) Two hundred and Eleven Thousand and Seven Two

211,072

To Order Whole Numbers
Write them underneath each other
in their respective place values.

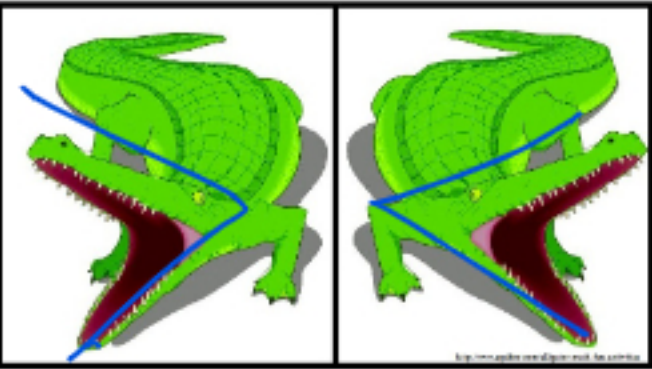
Start comparing from left to right.

Q1 Write in increasing order

211321, 621341, 123453, 321725

Comparing Signs

Greater Than Less Than Alligators



Open the mouth of alligator
next to largest number


Equal to

↑↓

Q2 Write the correct signs

7231	23451
3211	3211
123456	78900
3212	4566

Greater Than Less Than Alligator



63

36



ORDERING AND COMPARING WHOLE NUMBERS

To Order Whole Numbers
Write them underneath each other
in their respective place values.

Start comparing from left to right.

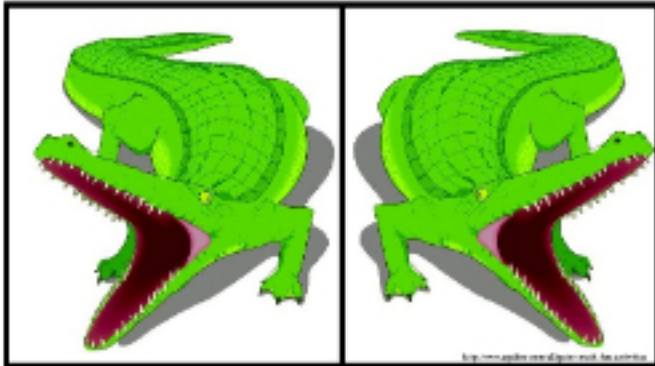
Q1 Write in increasing order

211321, 621341, 123453, 321725

123453
211321
321725
621341

Comparing Signs

Greater Than Less Than Alligators



Open the mouth of alligator
next to largest number

Equal
to

=

Q2 Write the correct signs

7231 < 23451

3211 = 3211

123456 > 78900

3212 << 4566

Greater Than Less Than Alligator



63

36



a) Write the numbers underneath each in the same place value columns

b) Start adding from the units

c) Write the units and carry the tens

Q1 Add $372 + 45$

Q2. Add. $999 + 777$

Q3 David spent \$500 on room rent, \$350 in Entertainment and \$299 in shopping. Work Out his Total Expense.

$$\begin{array}{r} 1 \\ 652 \\ + 471 \\ \hline 1123 \end{array}$$

The diagram shows the addition of 652 and 471. A red '1' is written above the tens column, indicating a carry. A blue arrow points from the '1' to the hundreds column. The result 1123 is shown below a horizontal line, with a blue box around the '3' and a blue arrow pointing from the '3' to the '2' in the tens column, indicating a carry.

12

a) Write the numbers underneath each in the same place value columns

b) Start adding from the units

c) Write the units and carry the tens

Q1 Add $372 + 45$

$$\begin{array}{r} 372 \\ + 45 \\ \hline 417 \end{array}$$

Q2. Add. $999 + 777$

$$\begin{array}{r} 999 \\ + 777 \\ \hline 1776 \end{array}$$

Q3 David spent \$500 on room rent, \$350 in Entertainment and \$299 in shopping. Work Out his Total Expense.

$$\begin{array}{r} 500 \\ + 350 \\ + 299 \\ \hline \$1149 \end{array}$$

$$\begin{array}{r} 1 \\ 652 \\ + 471 \\ \hline 1123 \end{array}$$



- a) Write the numbers underneath each in the same place value columns with bigger number add the top
- b) Start subtracting from the units.
- c) If there is a smaller number at the top then carry one digit from the neighbouring number and decrease its value by 1.

Q1 Subtract 299 from 900.



Q3 David spent \$500 on room rent, \$350 in Entertainment and \$299 in shopping. Work Out his Total Expense. If he earns \$3000, how much he saves.

$$\begin{array}{r} 615 \\ \cancel{753} \\ -491 \\ \hline 262 \end{array}$$

- a) Write the numbers underneath each in the same place value columns with bigger number add the top
- b) Start subtracting from the units.
- c) If there is a smaller number at the top then carry one digit from the neighbouring number and decrease its value by 1.

Q1 Subtract 299 from 900.

$$\begin{array}{r} 8 \cancel{9} \cancel{0} \cancel{0} \\ - 299 \\ \hline 601 \end{array}$$

$$\begin{array}{r} 8 \quad 9 \\ \dots \cancel{9} \cancel{0} \cancel{0} \\ - 299 \\ \hline 601 \end{array}$$

Q3 David spent \$500 on room rent, \$350 in Entertainment and \$299 in shopping. Work Out his Total Expense. If he earns \$3000, how much he saves.

Total Expense

$$\begin{array}{r} 500 \\ 350 \\ 299 \\ \hline \$1149 \end{array}$$

Total Saving

$$\begin{array}{r} 299 \\ 3000 \\ - 1149 \\ \hline \$1851 \end{array}$$

$$\begin{array}{r} 6 \quad 15 \\ \cancel{7} \cancel{5} 3 \\ - 491 \\ \hline \end{array}$$

$$262$$

$$\begin{array}{r} 2 \quad 9 \quad 9 \\ \cancel{3} \cancel{0} \cancel{0} \\ - 1149 \\ \hline \end{array}$$

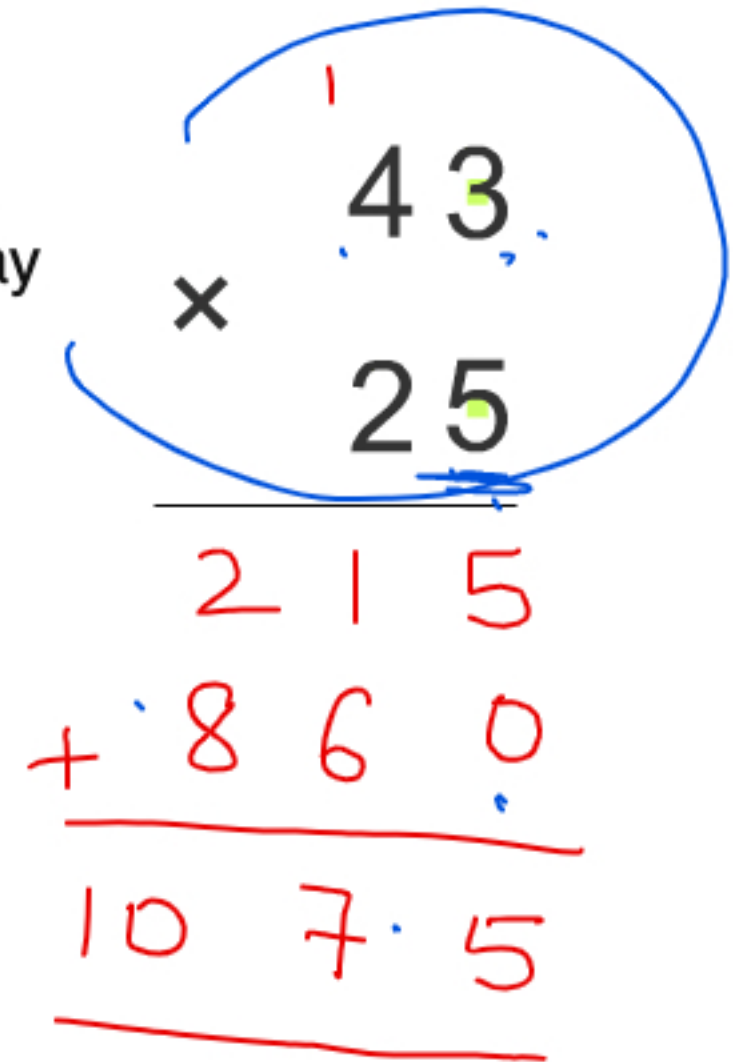
Multiply the units of a lower number with the top numbers.

Next Add Zero to the next line units and multiply the tens of a lower number with the top numbers.

Add the coloumns

Q1 Multiply 305 X 39

Q1 A Pack of pens cost \$20. I bought 22 packs. How much will I pay in total ?



Handwritten multiplication of 43 by 25. The numbers 43 and 25 are circled in blue. The calculation shows 43 multiplied by 5 equals 215, and 43 multiplied by 20 equals 860. The final sum is 1075.

$$\begin{array}{r} 43 \\ \times 25 \\ \hline 215 \\ + 860 \\ \hline 1075 \end{array}$$

Multiply the units of a lower number with the top numbers.

Next Add Zero to the next line units and multiply the tens of a lower number with the top numbers.

Add the coloumns

Q1 Multiply 305 X 39

$$\begin{array}{r}
 305 \\
 \times 39 \\
 \hline
 2745 \\
 + 9150 \\
 \hline
 11895
 \end{array}$$

Q1 A Pack of pens cost \$20. I bought 22 packs. How much will I pay in total ?

$$\begin{array}{l}
 22 \times \$20 \\
 = \$440
 \end{array}$$

$$\begin{array}{r}
 43 \\
 \times 25 \\
 \hline
 215 \\
 + 860 \\
 \hline
 1075
 \end{array}$$



Q1 Divide 1590 by 30

$4 \div 9 = 0$
 $9 \times 0 = 0$
 $42 \div 9 = 4$
 $9 \times 4 = 36$
 $68 \div 9 = 7$
 $9 \times 7 = 63$
 $54 \div 9 = 6$
 $9 \times 6 = 54$

$\overset{0476}{9 \overline{)4284}}$
 $\underline{0}$
 42
 $\underline{36}$
 68
 $\underline{63}$
 54
 $\underline{54}$
 0

- ✓ Step 1: "How many times?"
 - ✓ Step 2: "Multiply"
 - ✓ Step 3: "Subtract"
 - Step 4: "Drop it down"
- (repeat steps for each number, left to right)



Q2 I have 4550 boxes which I need to divide between 50 people. How much will each get?

$\overset{0476}{9 \overline{)4284}}$
 $\underline{0}$
 42
 $\underline{36}$
 68
 $\underline{63}$
 54
 $\underline{54}$
 0



Q1 Divide 1590 by 30

$$\begin{array}{r}
 53 \checkmark \\
 30 \overline{) 1590} \\
 \underline{-150} \\
 90 \\
 \underline{-90} \\
 0
 \end{array}$$

Q2 I have 4550 boxes which I need to divide between 50 people. How much will each get?

$$\begin{array}{r}
 91 \\
 50 \overline{) 4550} \\
 \underline{-450} \\
 50 \\
 \underline{-50} \\
 X
 \end{array}$$

	0 4 7 6	
$4 \div 9 = 0$	$9 \overline{) 4284}$	
$9 \times 0 = 0$	$\underline{0}$	
$42 \div 9 = 4$	$\underline{42}$	
$9 \times 4 = 36$	$\underline{36}$	
$68 \div 9 = 7$	$\underline{63}$	
$9 \times 7 = 63$	$\underline{63}$	
$54 \div 9 = 6$	$\underline{54}$	
$9 \times 6 = 54$	$\underline{54}$	
	0	

Step 1: "How many times?"

Step 2: "Multiply"

Step 3: "Subtract"

Step 4: "Drop it down"

(repeat steps for each number, left to right)

Q1 Find the Following:-

a) $(24 \div 6) + 3 \times 5$
 $4 + 15$

b) $2^3 \times 5 \div 8$

c) $2 \times 8 + 3^2 + (50 \div 10)$

B → Brackets ()

O → Of or orders: powers, roots, etc.

D } → Division and multiplication
M }

A } → Addition and subtraction
S }

Q1 Find the Following:-

a) $(24 \div 6) + 3 \times 5$

b) $2^3 \times 5 \div 8$

c) $2 \times 8 + 3^2 + (50 \div 10)$

B → Brackets ()

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Q1 Find the Following:-

B → Brackets ()

O → Of or orders: powers, roots, etc.

D } → Division and multiplication
M }

A } → Addition and subtraction
S }

$$\begin{aligned} \text{a) } & (24 \div 6) + 3 \times 5 \\ & = 4 + 15 = 19 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{b) } & 2^3 \times 5 \div 8 \\ & 8 \times 5 \div 8 \quad 40 \div 8 \\ & \quad \quad \quad 5 \end{aligned}$$

$$\begin{aligned} \text{c) } & \underline{2 \times 8} + \underline{3^2} + (\underline{50 \div 10}) \\ & 16 + 9 + 5 \\ & = 30 \end{aligned}$$



Rate Chart

Story Book = \$25

Fiction Book = \$35

Science book = \$65

Novel Book = \$80

WORD PROBLEMS

Q1 George bought 3 Story Books, 10 Fiction Books, 9 Science books and 2 Novel Books. Work out his Total Cost.

Q2 Lina has \$1000. How many Novel Books can she buy with that amount.

Q3 Carl has \$100 and he bought a 2 Fiction book and a Story Book. How much money will he have left ?



Rate Chart

Story Book = \$25
Fiction Book = \$35
Science book = \$65
Novel Book = \$80

Q1 George bought 3 Story Books, 10 Fiction Books, 9 Science books and 2 Novel Books. Work out his Total Cost.

$$\begin{array}{r}
 3 \text{ Story Book} = 3 \times \$25 = 75 \\
 10 \text{ Fiction Book} = 10 \times \$35 = 350 \\
 9 \text{ Science book} = 9 \times \$65 = 585 \\
 2 \text{ Novel Book} = 2 \times \$80 = 160 \\
 \hline
 \$1170
 \end{array}$$

Q2 Lina has \$1600. How many Novel Books can she buy with that amount.

$$80 \overline{) 1600} \left. \begin{array}{l} 20 \\ \times 0 \end{array} \right\} \rightarrow 20 \text{ Books.}$$

Q3 Carl has \$100 and he bought a 2 Fiction book and a Story Book. How much money will he have left?

$$\$100 - 95 = \$5 \text{ left.}$$

$$\begin{array}{r}
 \text{Fiction Book} = \$70 \\
 \text{Story Book} = \$25 \\
 \hline
 \$95
 \end{array}$$



NEXT STEP

★ CHECK SPECIFICATION

★ EXAM QUESTIONS ON THE TOPIC

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a) If a number is closer to zero it will be bigger as compared to the number further away from zero.

b) Negative numbers decreases as we move towards the left of the number line.

Q1 Write each sets of numbers from smallest to largest

a) 10 0 -5 -1 3 8

$-5 < -1 < 0 < 3 < 8 < 10$

b) -58 45 33 -22 47 -81