# MULTIPLICATION

Question : 273 x 64

## Method 1 - Grid Method

| ×  | 200   | 70   | 3   |
|----|-------|------|-----|
| 60 | 12000 | 4200 | 180 |
| 4  | 800   | 280  | 12  |

$$
\begin{array}{r}
12000 \\
4200 \\
800 \\
280 \\
180 \\
12 \\
\hline
17472
\end{array}
$$

+

- Draw out a grid splitting the numbers up
  - 273 = 200, 70 & 3
  - 64 = 60 & 4
- Find the empty entries of the table by multiplying each pair of numbers together
- Add up all the numbers you calculated through column addition

same answer different method

Knowing your times tables well is crucial, these are the building blocks to many numerical problems you will face on a noncalculator exam. Make sure you practice them as much as you can!

## MULTIPLICATION

Question : 273 x 64

## Method 2 - Column Method

273
64 x
121
1092
41
16380
1
17472

- Always place the bigger number on top and line them in the correct position
- Multiply all the top numbers with the bottom numbers
- 4x3 = 12, 7x4 = 28, 2x4 = 8
- 6x3 = 18, 6x7 = 42, 6x2 = 12
- add the results up

If the number you are multiplying underneath is from the tens column you need to add a zero to the right first, similarly if the number is from the hundreds column you add two zeros

Questions

Using either method answer the questions below

**892 x 45**

**57 x 23**

**Note**: If the question involves a decimal point, remove it and add this back in to the end.

If 231 x 56 = 12936, then 23.1 x 5.6 = 129.36

## DIVISION

**Bus Stop Method**

Example: $711 \div 3$

$$3 \overline{) 7^1 1^1 9}$$ gives $237$

answer = 237

If you have a remainder and no where to place it, then add a decimal point with a 0 followed after and continue the process!

Example: $355 \div 4$

$$4 \overline{) 3^3 5^3 5^3 . 0^3 0^2}$$ gives $088.75$

answer = 88.75

Questions

**156÷8**

**589÷2**

**732.5÷5**

When calculating sums in maths, we do not solve them left to right, instead we use the order **BIDMAS.**

**B**rackets
**I**ndices (powers and roots)
**D**ivision
**M**ultiplication
**A**ddition
**S**ubtraction

Example:

$$3 \times (3^2 + 4) - 8$$

$$= 3 \times (9 + 4) - 8$$

$$= 3 \times (13) - 8$$

$$= 39 - 8$$

$$= 31 \longrightarrow \text{final answer}$$

Questions

$$5 + 3^2 - 6 \times 4$$

$$\frac{3^2 + 3}{10 - 6}$$

Often an exam question will ask you to **round** your answer, this is an important skill you will need to know for the exam.

- **0-4** the number before stays the same
- **5-9** the number before increases by one

Examples:

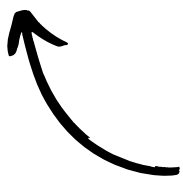Round the following numbers to 2 decimal places...

3.76**5**1 ------> 3.77 (the 5 makes the 6 round-up)
18.25**4**9 ------> 3.77 (the 4 makes the 5 stay the same)

Round the following numbers to 3 significant figures...

762.**3** ------> 762 (the 3 makes the 2 stay the same)
0.00594**5** ------> 0.00595 (the 5 makes the 4 round-up)

Zeros at the start of a number are not significant. The third significant digit in this case is 4

Questions

Round the following numbers to 1 decimal place…

3.767

4.51

126.93

Round the following numbers to 2 significant figures…

4560

23.45

0.60714

**Estimation**: always look out for this word in the exam as it can save you doing unnecessary complicated calculations for no reward!

The general convention when estimating is that we round numbers to **1 significant figure** before doing the calculations

Question

Paul organised an event for charity

Each ticket for the event cost £19.95
Paul sold 395 tickets.

Paul paid costs of £6000
He gave all the money left to the charity.

Work out an estimate for the amount of money Paul gave to the charity.

**Standard Form:** This is a way of writing very large or very small numbers in a form that is easier to read and write.

$$A \times 10^n$$

- **A** must always be between 1 and 10
- Always 10 raised to the power of a number (**n**)
- **n** must be a whole number
  - n positive - the decimal moves right and the number gets bigger
  - n negative - the decimal moves left and the number gets smaller

Examples:

$4.2 \times 10^5$ -----> 420000

$3.7 \times 10^{-2}$ -----> 0.037

$85000$ ------> $8.5 \times 10^4$

$0.005$ -----> $5 \times 10^{-3}$

Questions:

$2.1 \times 10^3$

$0.007$

Often questions in the exam will be part of a scenario in which you need to utilise numeracy to answer.

Question:

Tanya needs to buy chocolate bars for all the children in Year 7. Each of the 130 children get one chocolate bar.

There are 8 chocolate bars in each packet.

Work out the total number of packets of chocolate bars that Tanys needs to buy.