Maths Points

Junior and Leaving Cert

JCOL BASIC SKILLS
PACK 3

Junior Cert Ordinary level
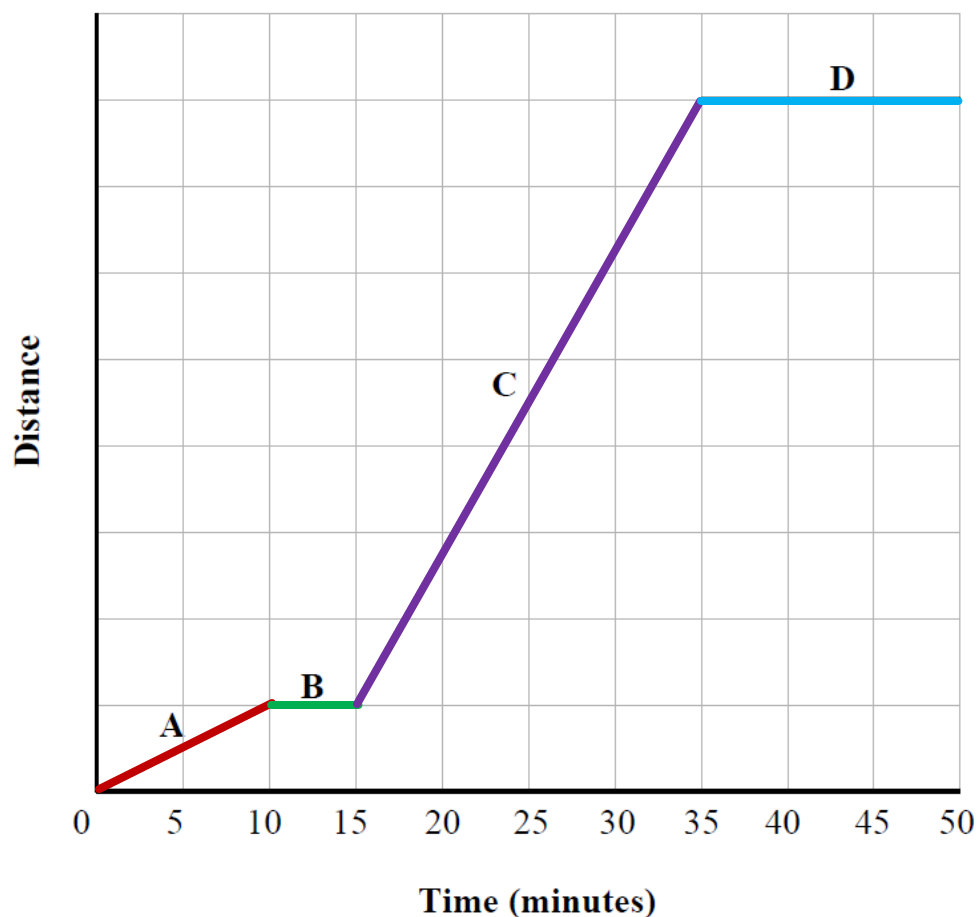
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Gráinne is taking part in a training session.
The graph shows the distance she travelled during the session.
The four parts of the graph are labelled A, B, C, and D.

Write the letters A, B, C, and D into the table to match each description with the correct part of the graph.

Description	Part of the Graph
Gráinne runs for 20 minutes	C
Gráinne stops for 15 minutes	D
Gráinne walks for 10 minutes	A
Gráinne stops for 5 minutes	B

(b)

Gráinne runs 4 km in 20 minutes at a steady pace.

Find her speed in km per hour.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{4}{\frac{1}{3}}$$

$$= 12 \text{ km/h}$$

A shop sells chicken wraps.
There are four different sauces and three different types of chicken, as shown in the table.
Margaret picks one sauce and one type of chicken.

Fill in the spaces below to show **three** different combinations that Margaret could pick.
One is already done.

Sauce	Chicken
BBQ Sauce	Plain
Mayonnaise	Fried
Hot Sauce	Tikka
Sweet Chilli	

Combination 1: Hot Sauce and Plain Chicken

Combination 2: BBQ Sauce and Fried Chicken

Combination 3: Sweet Chilli and Tikka Chicken

(ii)

Work out the **total** number of different possible combinations that Margaret could pick.

There are 4 choices for the Sauce and 3 choices for the Chicken.

$$[4] \times [3] = 12$$

There are 12 different possible combinations that Margaret could pick.

Fundamental Principal of Counting states that if one event has m possible outcomes and a second event has n possible outcomes then the total possible number of outcomes is: $m \times n$

€52 is divided between Fiona and Orla in the ratio 9 : 4.

How much does each receive?

Fiona : Orla

9 : 4

$9 + 4 = 13$ parts

Add the ratios together to find how many 'parts' there are.

$\dfrac{52}{13} = €4$ in 1 part

Divide the total amount of money by the sum of the ratios.

Fiona: 9 parts
$4 \times 9 = 36$

For each person multiply the amount given out per 1 part by the number of parts.

Orla: 4 parts
$4 \times 4 = 16$

Fiona gets €36 and Orla gets €16.

A circular table is shown in the diagram below. Aoife is trying to find the centre of the table. She constructs the right-angled triangle PQR as shown, with $|QR| = 1$ m and $|\angle RQP| = 90°$. She measures $[QP]$, and finds that $|QP| = 0.75$ m.

Use the Theorem of Pythagoras to calculate the length $|PR|$.
Give your answer in centimetres.

Pythagoras Theorem is on **page 16** of the Maths Formulae Book.

Let x be the hypotenuse of the right-angled triangle.

Pythagoras
$c^2 = a^2 + b^2$

$c^2 = a^2 + b^2$

$x^2 = 1^2 + 0.75^2$
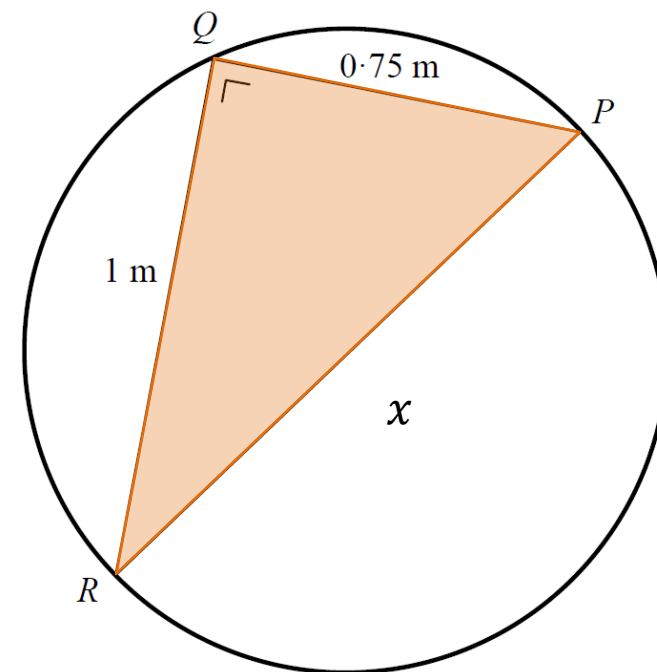
$x^2 = 1 + 0.5625$

$x^2 = 1.5625$

$x = \sqrt{1.5625}$

$x = 1.25$ m

Conversion
1 m = 100 cm

1.25 m = 125 cm

$|PR| = 125$ cm

There are 15 boxers in a boxing club. The weight of each boxer (in kg) is shown in the table below.

Work out the **mean weight** of the 15 boxers.

47	49	49	50	56
57	58	65	67	68
69	69	69	75	79

Mean $= \dfrac{\text{sum of all the values}}{\text{number of values}}$

$$= \frac{47 + 49 + 49 + 50 + 56 + 57 + 58 + 65 + 67 + 68 + 69 + 69 + 69 + 75 + 79}{15}$$

$$= \frac{927}{15}$$

$$= 61.8 \text{ kg}$$

The mean weight of the 15 boxers is 61.8 kg.

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