Maths Points

Junior and Leaving Cert

JCOL BASIC SKILLS

PACK 8

Junior Cert Ordinary level

JCOL Basic Skills: Pack 8 – Table of Contents

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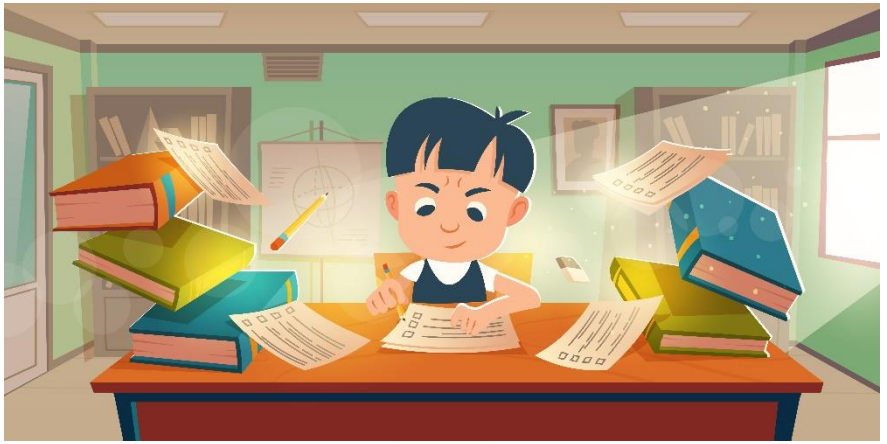

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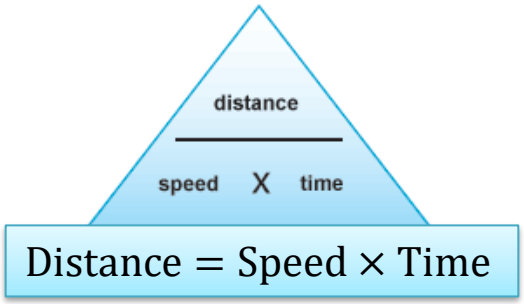
A person travelled at an average speed of 72 km/hr for 4 hours and 20 minutes.

How far did the person travel?



Distance = **S**peed × **T**ime

$= 72 \times 4\frac{1}{3}$

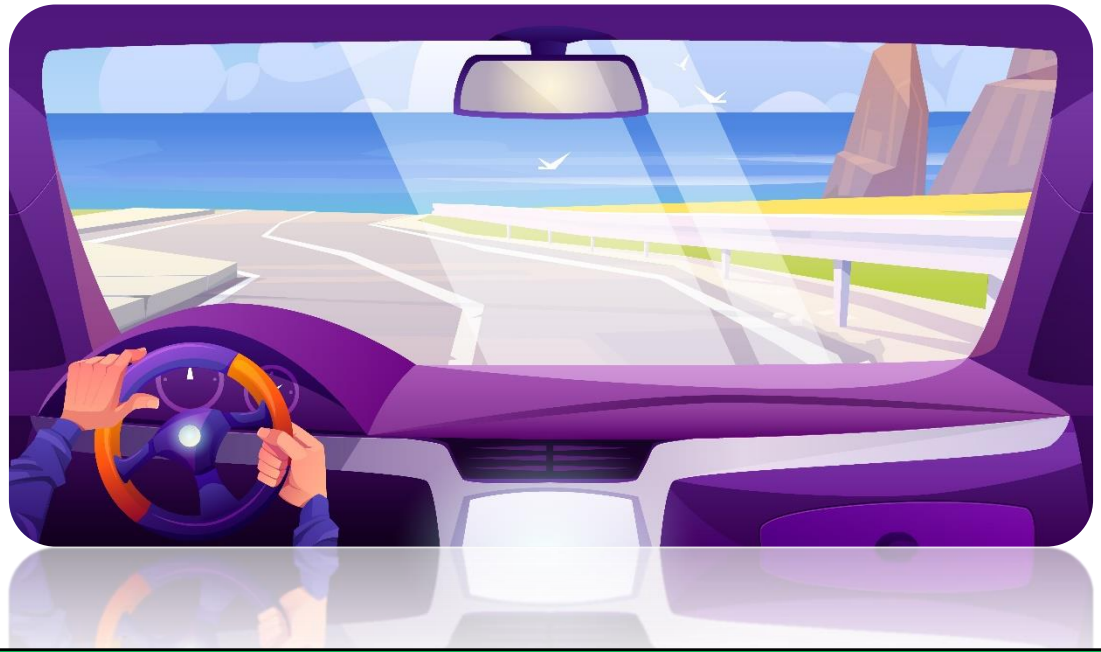
$= 312$ km

Conversion

20 mins

$= \frac{20}{60}$ hours

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



Verify that the point $(1, -1)$ is on the line $3x + 2y - 1 = 0$.

To determine whether a point is on a line we sub the x and y coordinates of the point into the line (for x and y) and check if the resultant equation is true.

$3x + 2y - 1 = 0$

$3x + 2y - 1 = 0$

$3(1) + 2(-1) - 1 = 0$ ← $x = 1, y = -1$

$3 - 2 - 1 = 0$

$0 = 0$

Which is true therefore $(1, -1)$ is on the line.

Multiply out and simplify $(x + 3)(x - 2)$.

Expand the brackets by multiplying then simplify by collecting 'like' terms together.

$(x + 3)(x - 2)$

$= x(x - 2) + 3(x - 2)$

$= x^2 - 2x + 3x - 6$

$= x^2 + x - 6$

Filip measures the height of seven of the students in his class. Their heights, in cm, are:

166 168 168 169 172 173 177

Work out the **median** of the data, in cm.

166	168	168	169	172	173	177

The **median** is the **middle value** when ordered from lowest to highest.

There are 7 values.

$$\frac{7}{2} = 3.5$$

If we get a decimal we always round up.

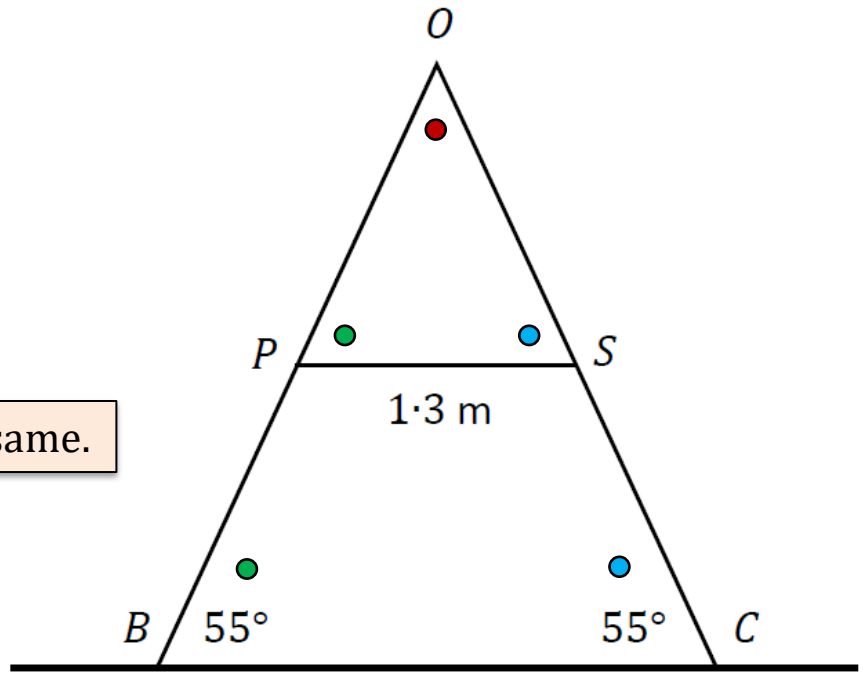
→ 4th value

Median = 169 cm

The diagram below shows part of a climbing frame.
The points B and C are on the ground.
The legs $[OB]$ and $[OC]$ are joined by the horizontal bar $[PS]$.
Ava measures the angle that each of the legs makes with the ground.
She finds that they are both 55°.

OBC and OPS are **similar** triangles.

Explain what this means.



Triangles are similar (equiangular) if all the angles are the same.

$|\angle OBC| = |\angle OPS|$ • Corresponding Angles

$|\angle OCB| = |\angle OSP|$ • Corresponding Angles

$|\angle BOC| = |\angle POS|$ • Common Angle

$\therefore \Delta OBC$ and ΔOPS are equiangular. The triangles are **similar**.

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