Maths Points

Junior and Leaving Cert

JCOL BASIC SKILLS

PACK 9

Junior Cert Ordinary level

JCOL Basic Skills: Pack 9 – Table of Contents

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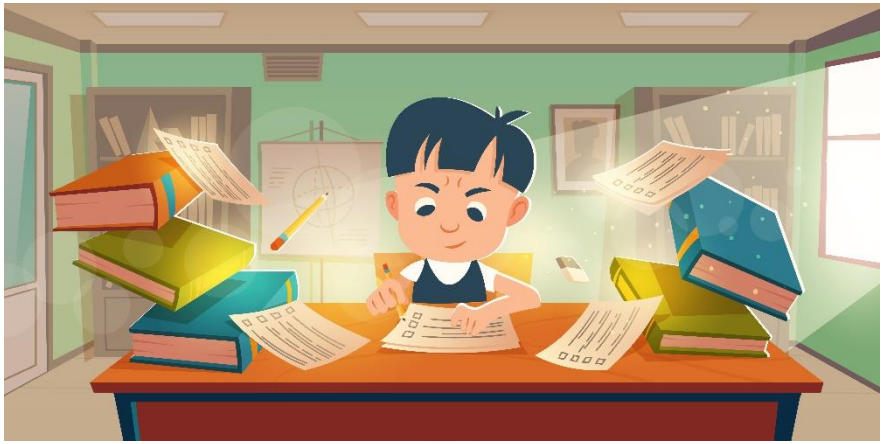

Maths Points

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Solve the equation:

$$\frac{2x+3}{5} = 7$$

Note:
Numerator – top of fraction
Denominator – bottom of fraction

$$\frac{2x+3}{5} = \frac{7}{1}$$

$$\frac{1(2x+3) = 5(7)}{\cancel{5}}$$

← Find the lowest common denominator.

$$2x + 3 = 35$$

← Drop the denominator if there is an equals in the numerator.

$$2x = 35 - 3$$

← Collect the x terms on one side and the constants on the other.

$$2x = 32$$

$$x = \frac{32}{2}$$

← Divide both sides by 2.

$$x = 16$$

The table below shows the calories in a fried chicken wrap.
Margaret is going to draw a pie chart to show this information.
The angles of some of the sectors are shown in the table.

Work out the number of calories in the **mayonnaise** in the wrap.
Write your answer in the appropriate space in the table above.

Ingredient	Number of Calories (kcal)	Angle in Pie Chart
Wrap	150	90°
Fried chicken	240	144°
Cheese	130	
Mayonnaise	80	
Total	600	360°

There are 360° in a circle.

(d) (i)

Write the **total** number of degrees in the pie chart in the appropriate space in the table above.

Subtract the sum of the calories per item from the total calories.

$$600 - (150 + 240 + 130)$$
$$= 600 - 520$$
$$= 80$$

Continued

Work out the sizes of the two missing angles in the pie chart.

Write each answer in the appropriate space in the table above.

Ingredient	Number of Calories (kcal)	Angle in Pie Chart
Wrap	150	90°
Fried chicken	240	144°
Cheese	130	78°
Mayonnaise	80	48°
Total	600	360°

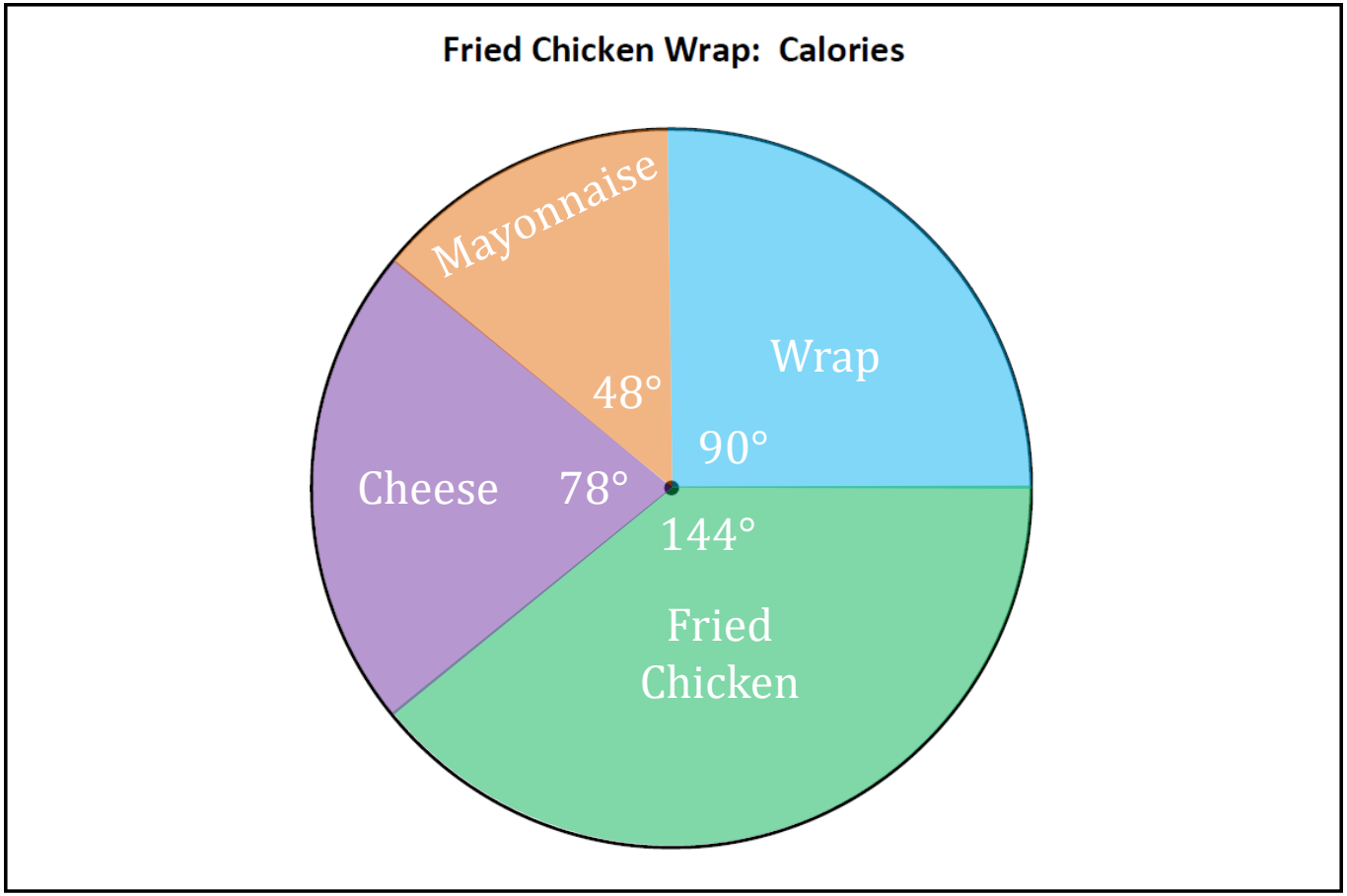
$\frac{130}{600} \times 360$

$\frac{80}{600} \times 360$

Continued

Complete the pie chart below to show the information in the table.

Label each sector clearly with the name of the ingredient **and** the size of the angle.

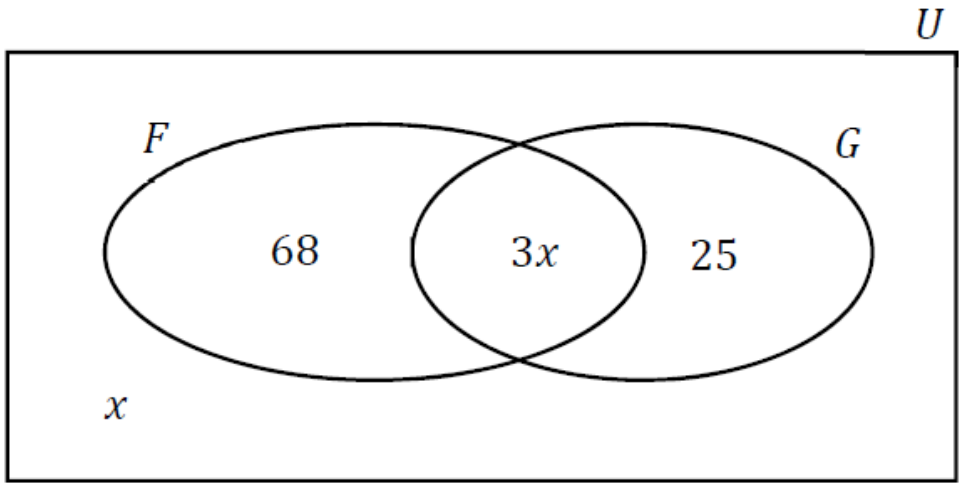


Ingredient	Angle in Pie Chart
Wrap	90°
Fried Chicken	144°
Cheese	78°
Mayonnaise	48°

Kate carried out a survey on the students in her year (U) to see how many study French (F) or German (G). Her results are shown in the Venn diagram below, where $x \in \mathbb{N}$.

Kate finds out that there are 141 students in total in her year.

Work out the value of x.



Let the sum of the regions in the Venn diagram equal 141 and solve the linear equation for x.

$$68 + 3x + 25 + x = 141$$

$$3x + x = 141 - 25$$

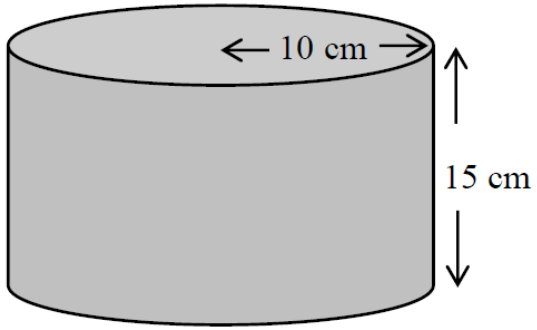
$$4x = 116$$

$$x = \frac{116}{4}$$

$$x = 29$$

A solid metal cylinder has radius 10 cm and height 15 cm.

Taking π as 3.14 , find, in cm^3, the volume of the solid metal cylinder.



Volume of a Cylinder

$V = \pi r^2 h$

$V = \pi r^2 h$

$V = (3.14)(10)^2(15)$

$V = 4710 \text{ cm}^3$

$r = 10$
$h = 15$

The formula for the **Volume of a Cylinder** can be found on **page 10** of the Maths Formulae Book.

If asked to leave your answer in terms of π.

Volume of a Cylinder

$V = \pi r^2 h$

$V = \pi r^2 h$

$V = \pi(10)^2(15)$

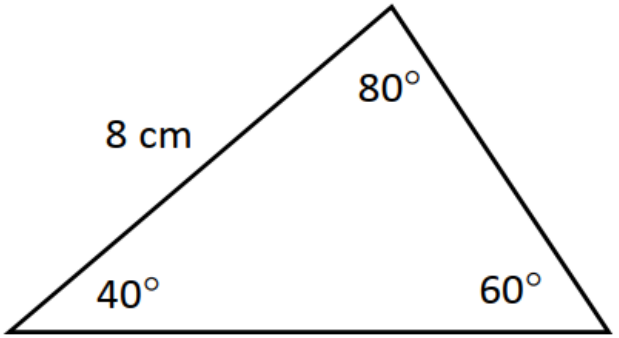
$V = 1500\pi \text{ cm}^3$

$r = 10$
$h = 15$

The triangle BOP has:

one side that is 8 cm long
one angle of 40°
one angle of 60°.

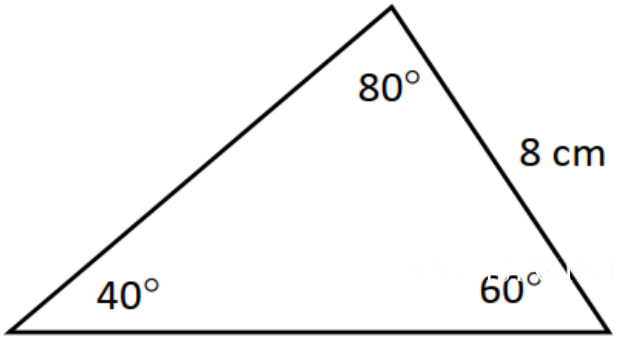
Work out the size of the **third angle** in the triangle BOP.



Theorem 4 (Angle Sum 180)

The angles in any triangle add to 180°.

$$180 - (60 + 40)$$
$$= 180 - 100$$
$$= 80°$$

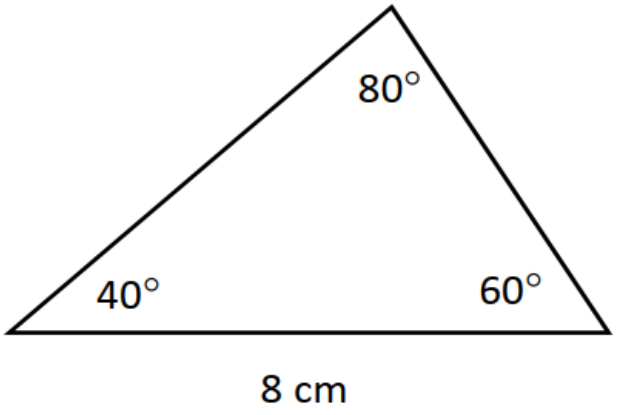


(b)

Draw a **sketch** of one such triangle BOP.

On your sketch, **write in** the size of **all** 3 angles, and the length of one of the sides.

There are a number of different sketches we could draw.

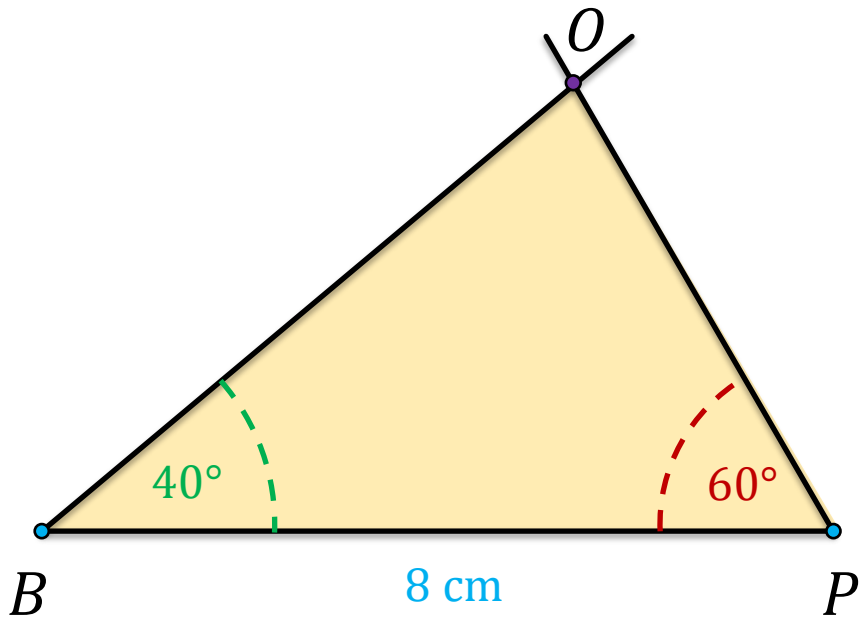


Continued

Construct the triangle BOP from your sketch.

Steps

1. Use a ruler to draw the line $|BP| = 8$ cm.
2. Use a protractor to construct an angle of $40°$ at point B.
3. Use a protractor to construct an angle of $60°$ at point P.
4. Mark the point of intersection of the arms as O and this is the required triangle ΔBOP.



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