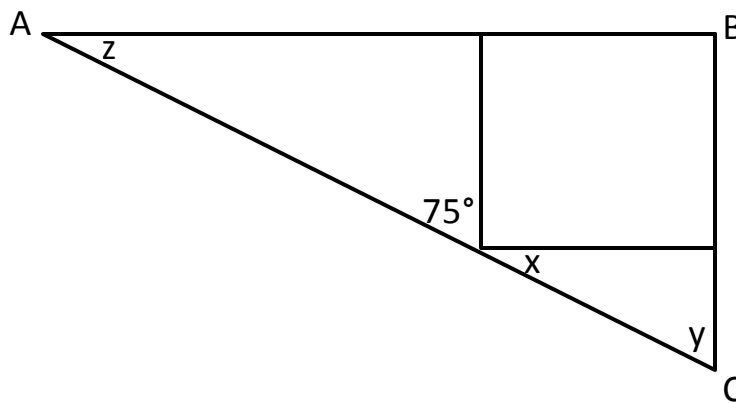




Geometry – Non-Calculator

1) Look at the right-angled triangle ABC.

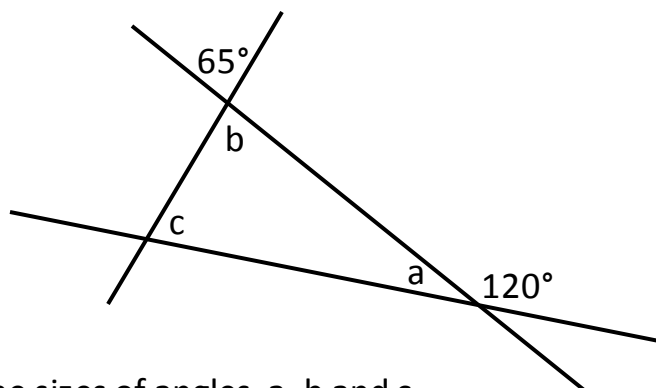


Not drawn accurately

The square fits exactly inside the triangle.

Workout the sizes of angles x , y , and z .

2) The diagram shows three straight lines.

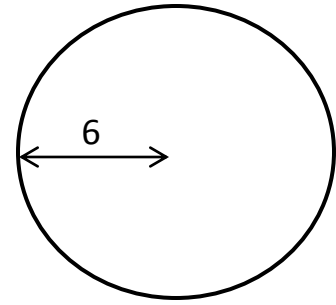


Not drawn accurately

Work out the sizes of angles a , b and c .

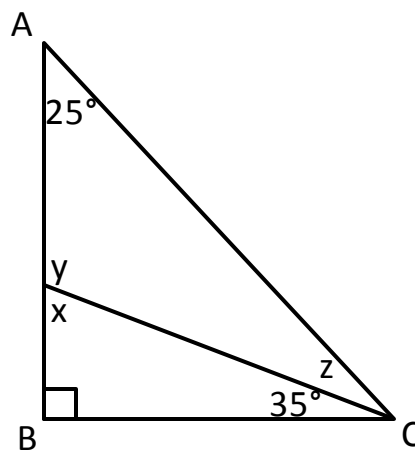
3) David is working out the area of a circle with radius 6.

He says 'the area of the circle is $\pi \times 12$ '



Explain why David is wrong.

4) The diagram shows triangle ABC.

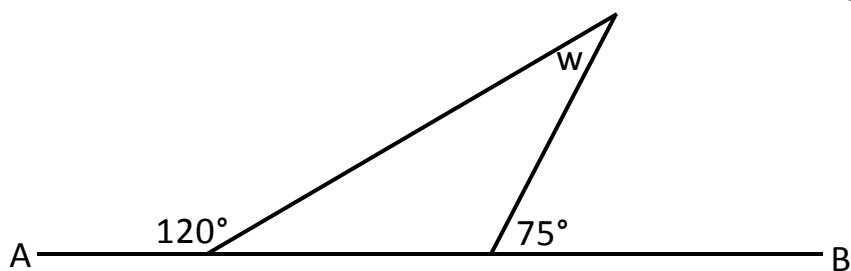


Not drawn accurately

Work out the sizes of angles x , y and z .

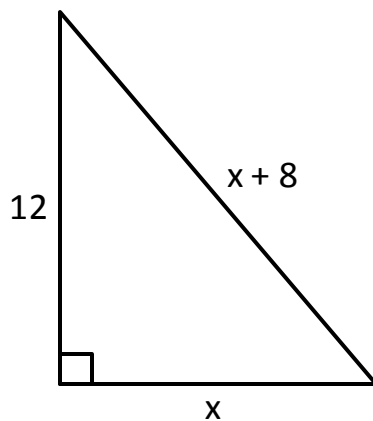
5) Look at the diagram.

Not drawn
accurately



AB is a straight line.
Work out the size of angle w .

6) Look at the right-angled triangle.

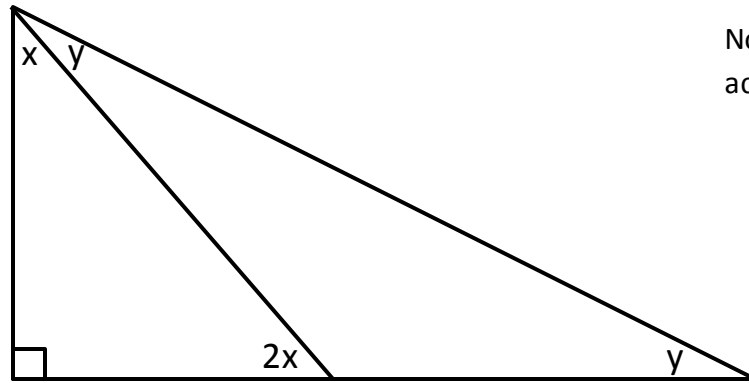


a) Use Pythagoras' theorem to complete the equation below.

$$(x + 8)^2 =$$

b) Now work out the value of x .

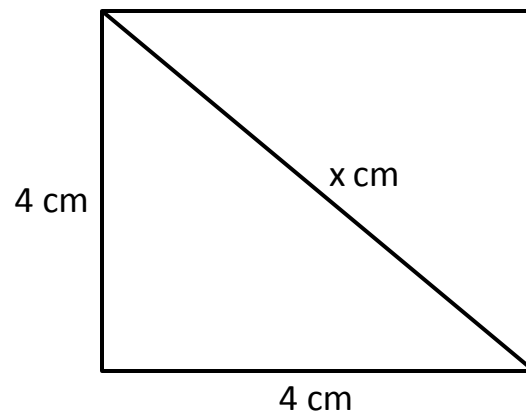
7) Look at the triangle.



Not drawn accurately

Work out the value of x and y .

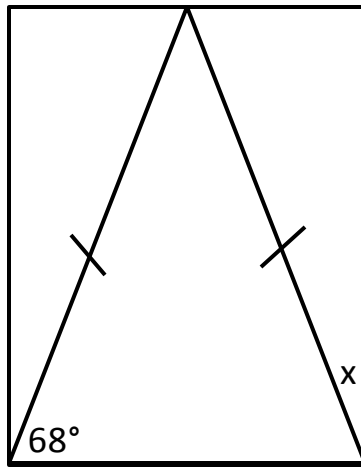
8) The diagram shows a square with side length 4cm.



Not drawn accurately

The length of the diagonal is x cm.
Show that the value of x is $\sqrt{32}$

9) The diagram shows an isosceles triangle inside a rectangle.

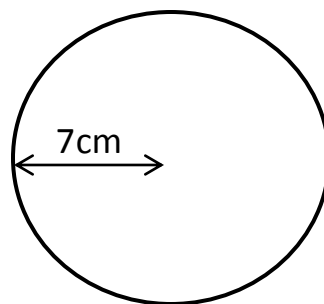


Not drawn accurately

a) On the diagram, mark another angle that is 68°
Label it 68°

b) Calculate the size of the angle marked x.

10) Below is a circle with radius 7cm.



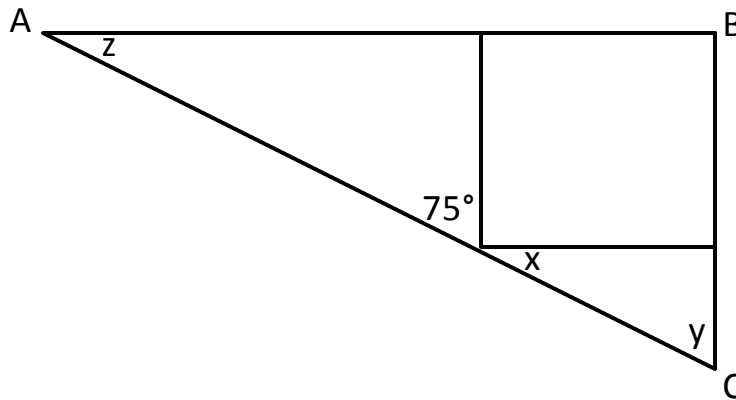
a) Work out, in terms of π , the circumference of the circle.

b) Work out, in terms of π , the area of the circle.



Answers

1) Look at the right-angled triangle ABC.



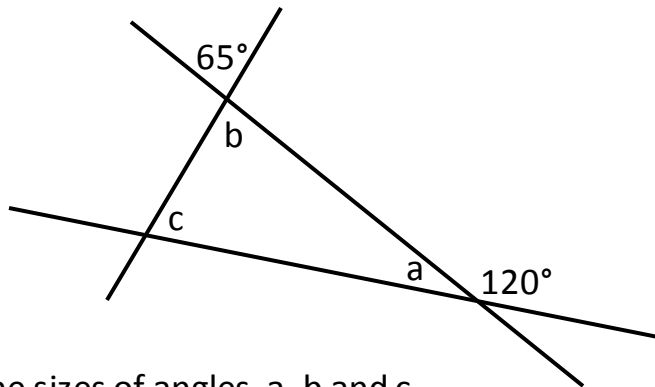
Not drawn accurately

The square fits exactly inside the triangle.

Workout the sizes of angles x , y , and z .

$x = 15^\circ$, $y = 75^\circ$ and $z = 15^\circ$

2) The diagram shows three straight lines.



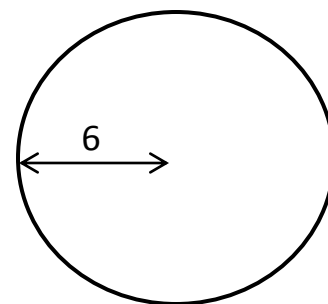
Not drawn accurately

Work out the sizes of angles a , b and c .

$a = 60^\circ$, $b = 65^\circ$ and $c = 55^\circ$

3) David is working out the area of a circle with radius 6.

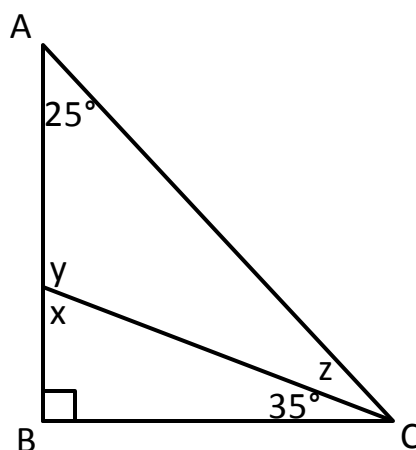
He says 'the area of the circle is $\pi \times 12$ '



Explain why David is wrong.

The area of the circle is $\pi \times 36$

4) The diagram shows triangle ABC.



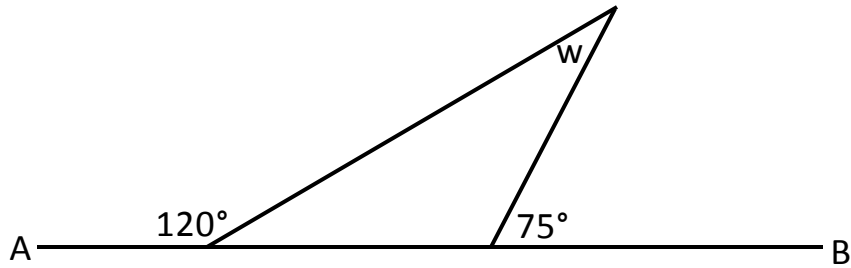
Not drawn accurately

Work out the sizes of angles x , y and z .

$x = 55^\circ$, $y = 125^\circ$ and $z = 30^\circ$

5) Look at the diagram.

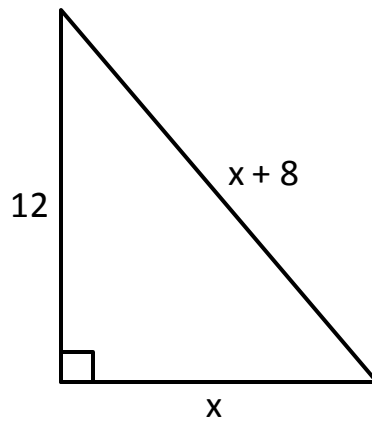
Not drawn
accurately



AB is a straight line.
Work out the size of angle w .

$$w = 15^\circ$$

6) Look at the right-angled triangle.



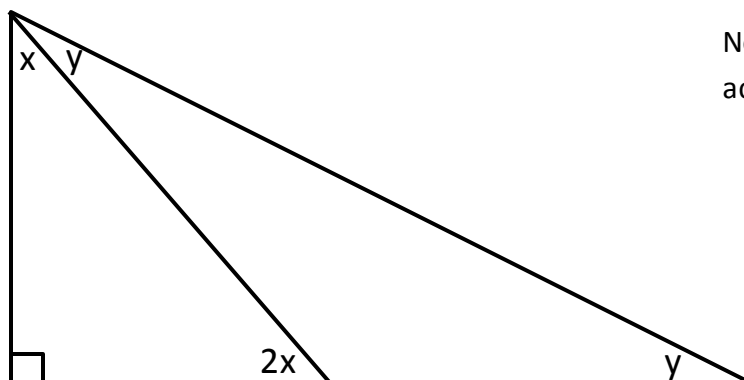
c) Use Pythagoras' theorem to complete the equation below.

$$(x + 8)^2 = x^2 + 12^2$$

d) Now work out the value of x .

$$x = 5$$

7) Look at the triangle.

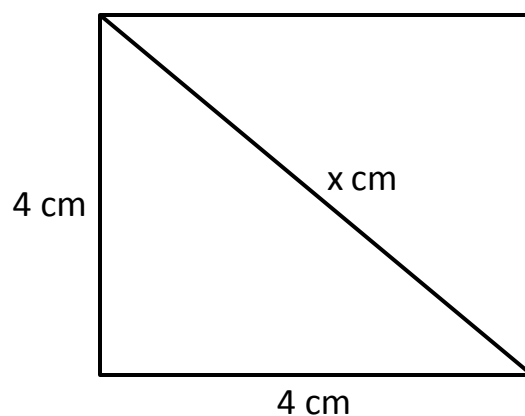


Not drawn accurately

Work out the value of x and y .

$$x = 30^\circ \text{ and } y = 30^\circ$$

8) The diagram shows a square with side length 4cm.



Not drawn accurately

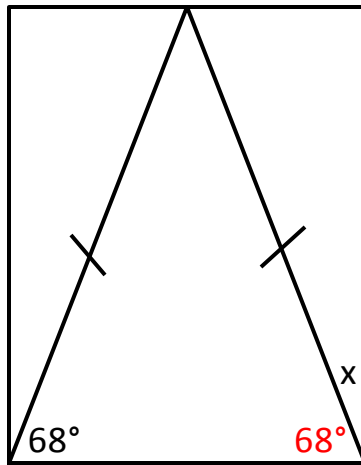
The length of the diagonal is x cm.

Show that the value of x is $\sqrt{32}$

$$\text{Using Pythagoras' theorem } x^2 = 4^2 + 4^2$$

$$\text{Therefore } x^2 = 32, \text{ hence } x = \sqrt{32}$$

9) The diagram shows an isosceles triangle inside a rectangle.

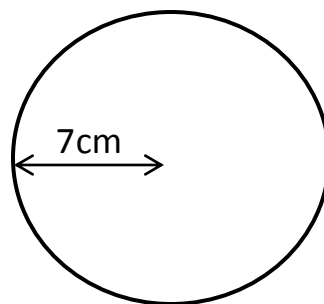


Not drawn accurately

a) On the diagram, mark another angle that is 68°
Label it 68°

b) Calculate the size of the angle marked x.
 $x = 22^\circ$

10) Below is a circle with radius 7cm.



a) Work out, in terms of π , the circumference of the circle.

$$14\pi$$

b) Work out, in terms of π , the area of the circle.

$$49\pi$$



MATHS HOMEWORK = HELP

Tips and Techniques

1. Read each question slowly. You may find it helpful to underline the numbers and important information that will affect your answer.

For example: Find 23 more than 57?

2. If you do not understand the question straightaway, try reading it through a couple of times until it makes sense.

3. Make sure you read the question carefully. Often, the words highlighted in bold in the question will be the part you need to pay the most attention to, e.g. *Which country had the **greatest increase** in visitors from 2005 to 2006?*

4. Even if you know the answer to the question without working it out on paper, it is important to always show your working out in the box provided. You will lose marks if you do not do this.

5. Always use a ruler when drawing shapes, symmetry or graphs.

6. Topics that are useful to revise;

* **Time** - 24 hour clock, adding a length of time e.g. 45 minutes to a certain time. An example of a question where time is used is - "*The time is one thirty in the afternoon. Write this as it would be shown on a twenty-four hour clock?*"

* **Money** - find the total amount of shopping items, how much change will you get from a £5, £10 note etc.

* **Number calculations** - times tables, addition, subtraction, multiplication and division methods.

* **Measurement** - how many metres in a kilometre, millilitres in a litre and grams in a kilogram?

* **Percentages and fractions** - $1/2=0.5$ or 50%, $1/4=0.25$ or 25%, $3/4=0.75$ or 75%, $1/3=0.33$ or 33%, $1/5=0.2$ or 20%

7. Check to see how many marks the question is worth. If it is worth more than one mark, make sure you show your working out.

8. Use everyday objects to help your child practice certain topics. For example; a shopping receipt can be good revision for money questions - adding totals and finding change. Other useful objects that you could use are;

* **Television Guide** - Practice the time a programme starts, what time will it finish? how long does the programme last?

* **Weather Chart** - Change in temperature - e.g. *The temperature fell from 3 degrees celsius to -4 degrees celsius. By how many degrees did the temperature fall?*

* **Measure yourself and other family members to practice height** (in cm, metres), weight (in grams, kilograms), area of hands and feet. You could also calculate the average family height, weight etc.