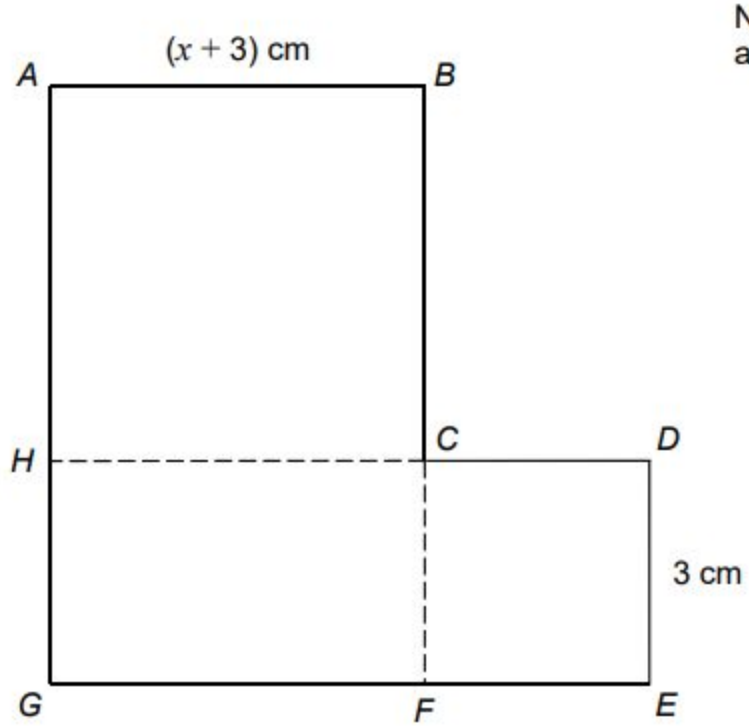
Question 1

ABCH is a square.

HCFG is a rectangle.

CDEF is a square.

They are joined to make an L-shape.



Not
acc

Show that the total area of the L-shape, in cm^2, is $x^2 + 9x + 27$

Question 2

Circle the correct answer in each of the following.

(a) Which of the following values **cannot** be an external angle of a regular polygon?

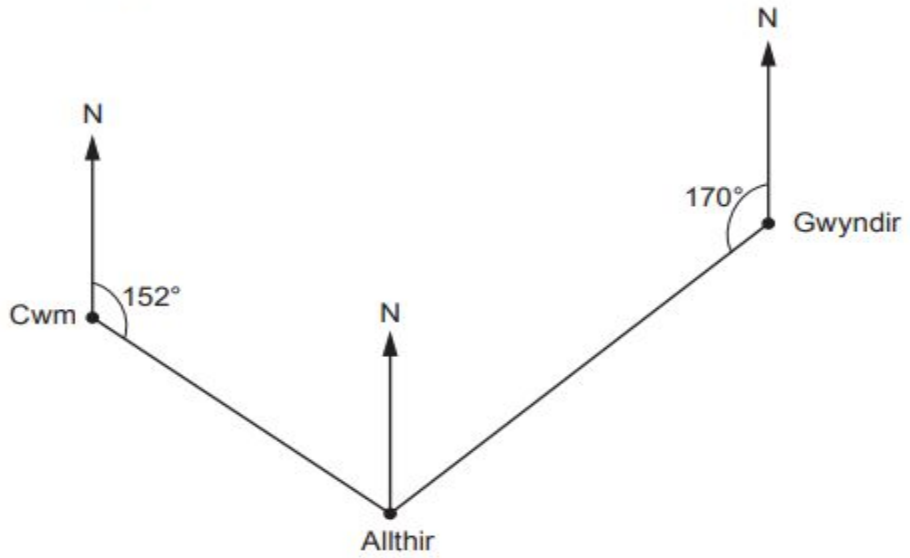
10° 18° 30° 48° 72°

(b) An arrow on a spinner is facing north.
It is turned clockwise through an angle of 1530°.
In which direction will the arrow now be facing?

North East South West None of these

Question 3

Sara is carrying out a survey of the three villages, Cwm, Allthir and Gwyndir.
The diagram below shows the positions of the three villages.



(a) What is the bearing of Allthir from Gwyndir?
Circle your answer.

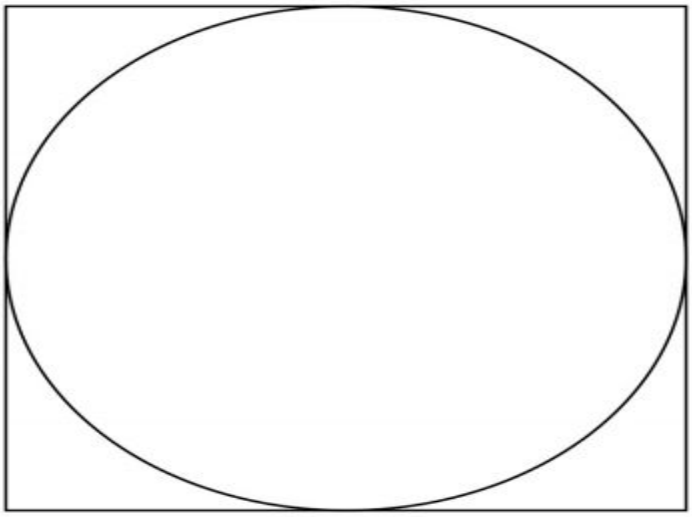
010° 170° 180° 190° 200°

(b) What is the bearing of Cwm from Allthir?
Circle your answer.

028° 152° 242° 332° 352°

Question 4

Here is a circle touching a square.



The area of the square is 64 cm^2

Work out the area of the circle.

Give your answer in terms of π.

Question 5

Complete the table:

Pounds	*Other Currency*	*Rate* (£1 =)
	\$7.04	\$1.59
£8.60	€11.35	
£4.44		¥153

Question 6

Here are two ways of having a car for one year.

Buy and sell	**Rent**
Buy it for £ 12 000	Normal Price: £ 195 per month
Sell it for £ 10 000 after one year	**Special Offer** 15% off

Which way is cheaper?
You **must** show your working.

Question 8

Olga took out a high-interest loan for £400.
She paid back £49 per month for 20 months to clear the loan.
Calculate the total interest that Olga paid as a percentage of the original loan.

Question 9

Lucy is playing in a 3 round knockout tournament, where if she loses a round she is out.

The probability of Lucy winning any round $\frac{3}{5}$.

(a) Draw a probability tree for these events.

(b) What is the probability Lucy gets to the third round?

Question 10

Bob starts at postion **A** and walks $18m$ due east, then proceeds to walks $59m$ due north and ends up at point **B**.

How far is Bob from his original position at **A**?

Question 11

Mr Jones works for five days each week.

If he uses his car to travel to work,

each day he drive a total distance of 24.2 miles

his car travels 32.3 miles per gallon of petrol

petrol costs £1.27 per litre.

If he uses the bus to travel to work, he can buy a weekly ticket for £19.50

Use 1 gallon = 4.5 litres

Is it cheaper if he uses his car or the bus to travel to work?

You **must** show your working.

Question 12

The nth term of a sequence is $2n + 1$

The nth term of a different sequence is $3n - 1$

Work out the **three** numbers that are

in both sequences

and

between 20 and 40

Question 13

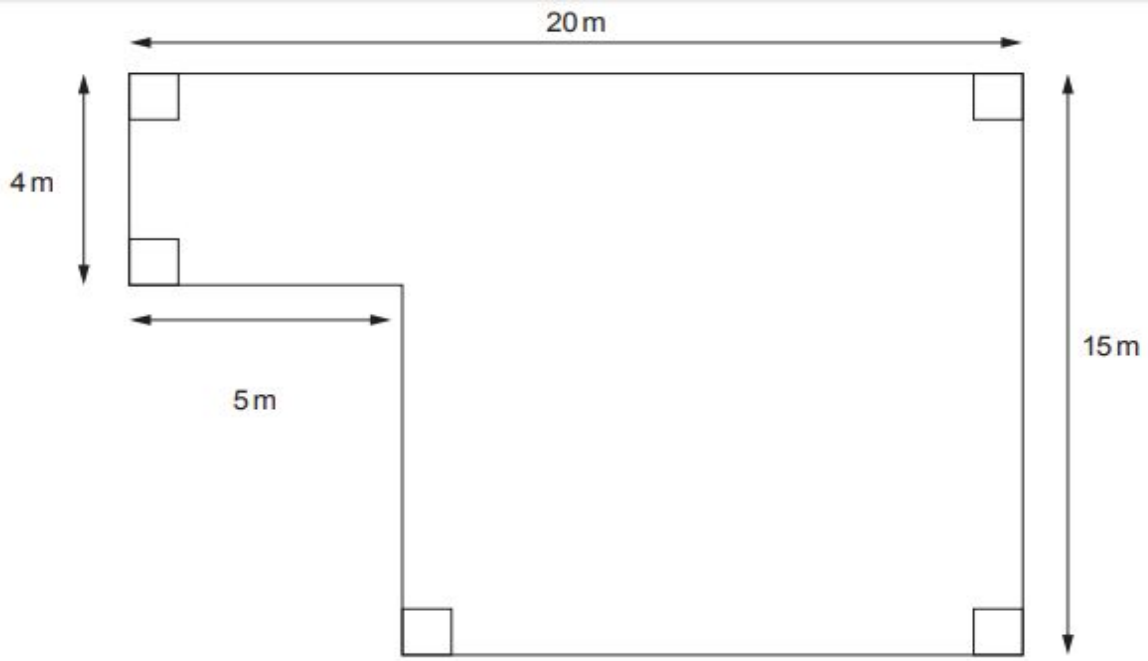


Diagram not drawn to scale

The concrete base of Miss Morgan's bungalow is 0·2 m thick.

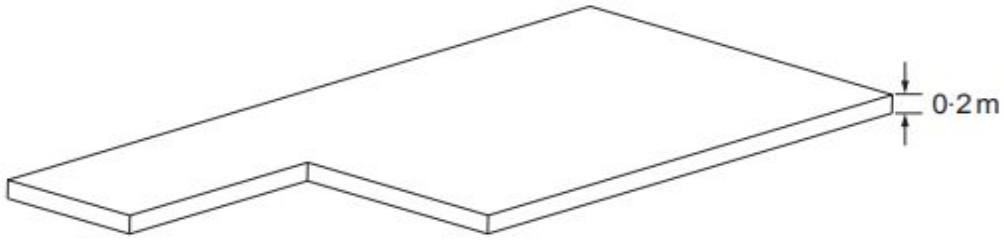
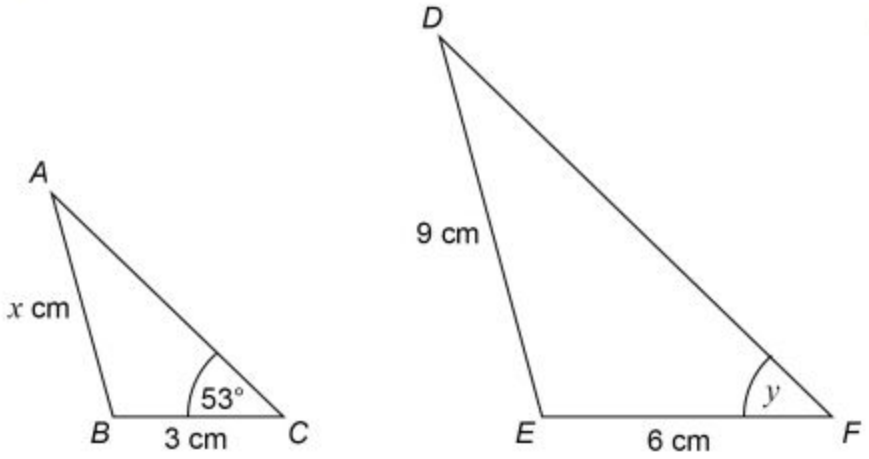


Diagram not drawn to scale

Calculate the volume of the concrete base.
You must show all your working. [4 + 2 OCW]

Question 14

6 Triangles *ABC* and *DEF* are similar.



(a) Work out the value of x.

(b) Write down the size of angle y.

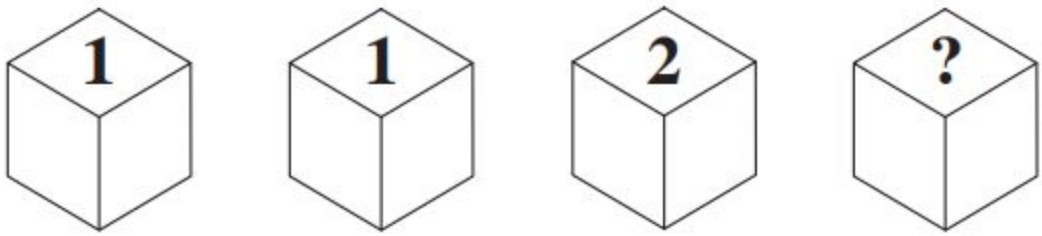
Question 15

A solid metal block has mass 500 g and volume 125 cm^3.

Work out the density of the block.
Give the units of your answer.

Question 16

The scores on four ordinary, six-sided dice are put in order.



The median of the **four** scores is 0.5 **less** than the mean of the four scores.

Circle the value of the fourth score.

2 3 4 5 6

Question 17

A group of 84 students is asked about the pets they own.

Each student owns a cat, dog, or both.

x students own both.

$\frac{1}{9}$ dog owners own both a cat and dog.

$\frac{1}{4}$ cat owners own both a cat and dog.

Using a Venn Diagram find the number of students who own both.