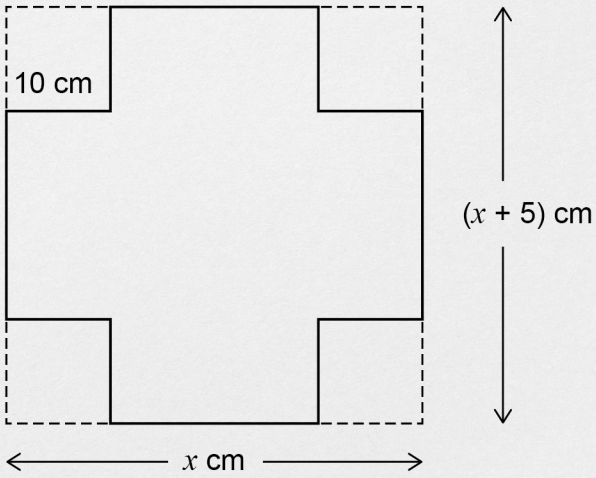
1 Kate has the following question for homework.

The net of a box is made by cutting four squares from a piece of cardboard.
The cardboard is a rectangle with width x cm and length $(x + 5)$ cm
Each square has side length 10 cm
The area of the net is 1000 cm^2
Work out the value of x.

Not drawn accurately



1 (a) Show that Kate can form the equation $x^2 + 5x - 1400 = 0$

[3 marks]

1 (b) Kate correctly factorises the equation to get $(x + 40)(x - 35) = 0$

Her answer to the homework question is $x = -40$ or $x = 35$

Is her answer correct?

Tick a box.

☐ Yes ☐ No

Give a reason for your answer.

[1 mark]

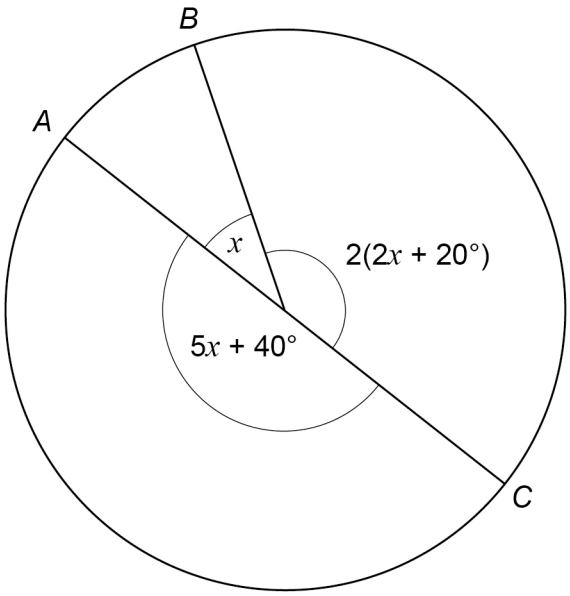
_____

_____

2 *A*, *B* and *C* are three points on a circle.

The radii from *A*, *B* and *C* are shown.

Not drawn accurately



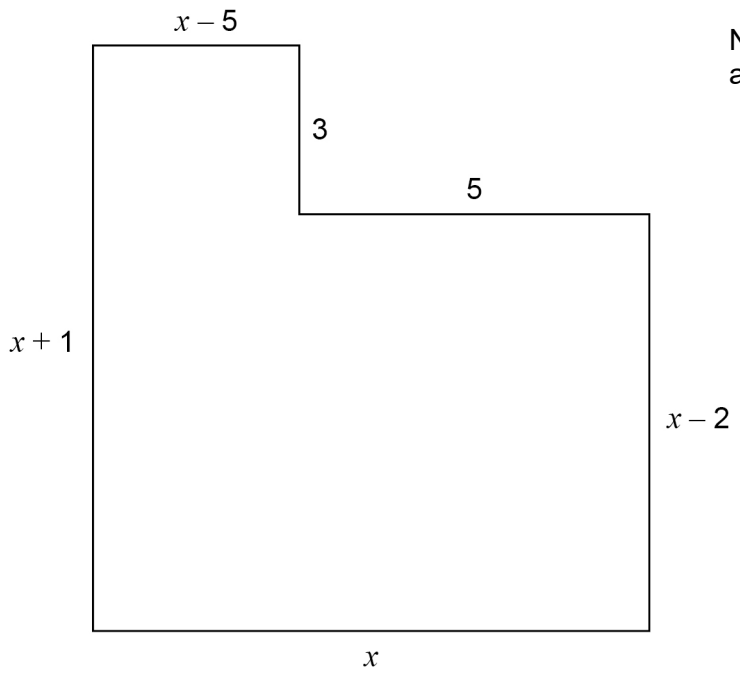
Is *AC* a diameter of the circle?

You **must** show your working.

[3 marks]

3 Here is the plan of the floor of an L-shaped room.

All lengths are in metres.



Not drawn accurately

3 (a) The area of the floor is $75\,m^2$

Show that $x^2 + x - 90 = 0$

[3 marks]

3 (b) By factorising $x^2 + x - 90$ work out the value of x.

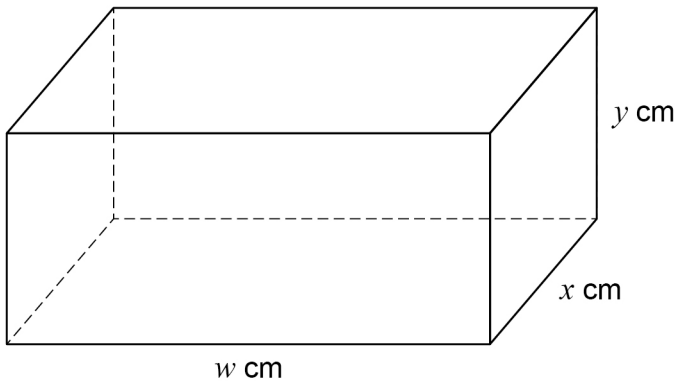
You **must** show your working

[2 marks]

$x =$ _____

4 (a) Here is a cuboid.

w, x and y are **different** whole numbers.



The total length of **all** the edges of the cuboid is 80 cm

The volume is **greater** than 200 cm^3

Work out one possible set of values for w, x and y.

[2 marks]

$w =$ _____ $x =$ _____ $y =$ _____

5 A chef has a tub of blueberries.

She wants to

use all the blueberries

put the same number of blueberries on each dessert.

$$D = \frac{k}{b}$$

D is the number of desserts.

b is the number of blueberries on each dessert.

5 (a) What does the constant k represent?

Tick the correct box.

[1 mark]

☐ The number of blueberries in the tub

☐ The number of desserts

☐ The number of blueberries on each dessert

☐ None of the above