AQA

GCSE

MATHEMATICS

Topic tests – Higher tier – Problem solving
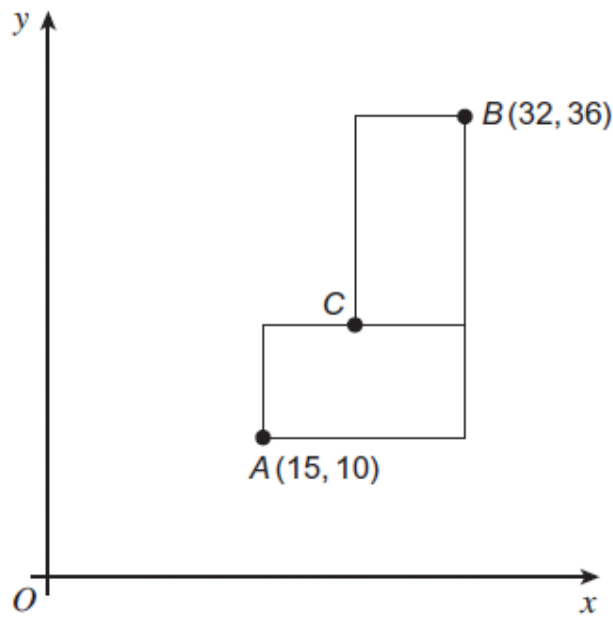
Name _____

1 The diagram shows two **identical** rectangles.

The rectangles have their sides parallel to the axes.
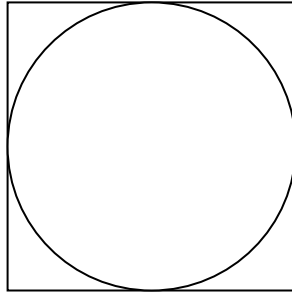
Not drawn accurately

Work out the coordinates of point *C*.

[4 marks]

_____

_____

_____

_____

Answer (_____, _____)

AQA

2   A circle is drawn inside a square as shown.

Show that the area of the circle is more than 75% of the area of the square.
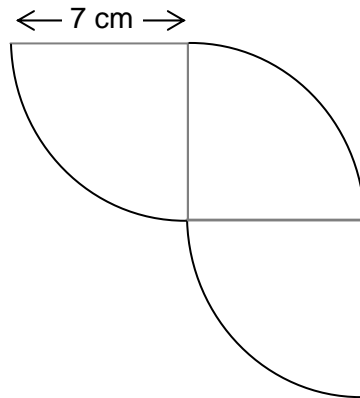
[4 marks]

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3 Given that $\dfrac{2^{3x}}{2^{(x-5)}} = 2^{17}$

Work out the value of x.

[3 marks]

_____

_____

_____

_____

$x = $ _____

AQA

4 This shape is made from identical quarter circles.

←— 7 cm —→

Not drawn
accurately

Work out the perimeter of the shape.

[4 marks]

Answer _____ cm

5 n is a positive integer.

$n \times 10^n$ is a square number.

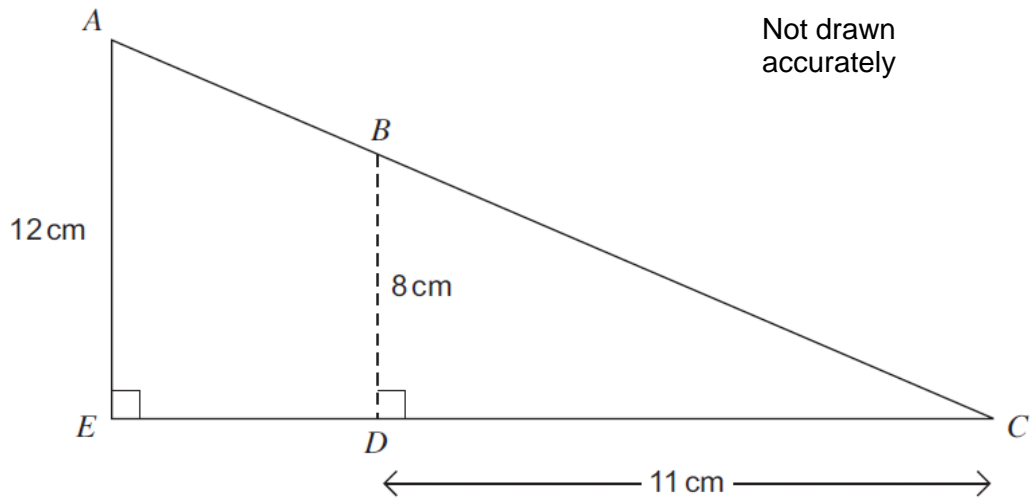What is the lowest possible value of n?

You **must** show your working.

$n =$ _____

6 n is an integer.

Show that $\dfrac{n(n-1)}{2} + \dfrac{n(n+1)}{2}$ is a square number.

[3 marks]

7 The diagram shows a triangle cut into a smaller triangle and trapezium.

Not drawn accurately

Work out the area of the trapezium *ABDE*.

[5 marks]

Answer _____ cm^2

END OF QUESTIONS

AQA