# FluidMaths

GCSE Mathematics (Grade 9-1)

Problem Solving
Pythagoras Theorem Set 1
Questions

Some useful strategies in problem-solving

- Read the question carefully
- Sketch a diagram where applicable
- Take note of key information
- Write down any formulae you may need
- Tackle the problem in bite-size rather than as a whole
- Concentrate on the part of the problem you understand and start from there
- Collaborate with a partner and share ideas
- Use a dictionary to find the meaning of any confusing words
- Check that your answers make sense in the context of the question
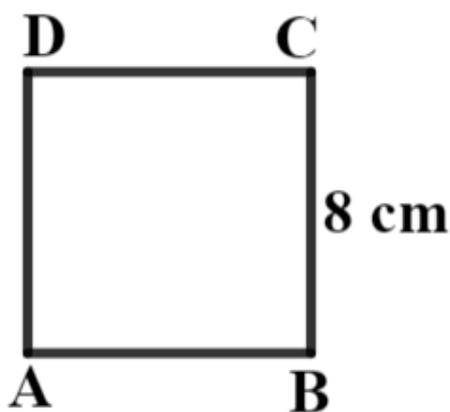
1	Two identical squares of side 4 cm are attached at a corner as shown below

A   4 cm

B
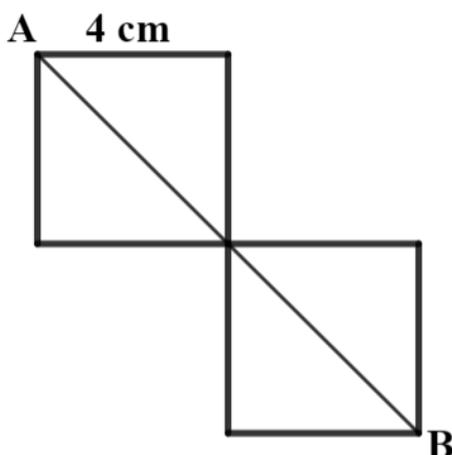
Calculate the exact length of line AB
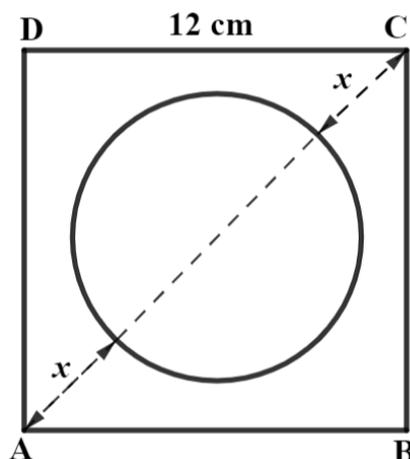
Give your answer in the form $a\sqrt{b}$

[4marks]

2	The diagram below shows a square ABCD of side 8 cm

D   C

8 cm

A   B

Calculate the exact length of the diagonal AC

Give your answer as a simplified surd

[2marks]

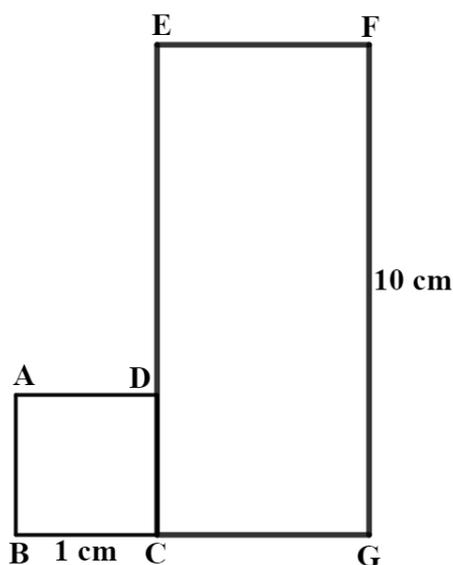**3** ABCD is a square of side 12 cm

A circle of diameter 10 cm is drawn inside the square
The distance between the circumference of the circle and each vertex of the square is x
Calculate the value of x
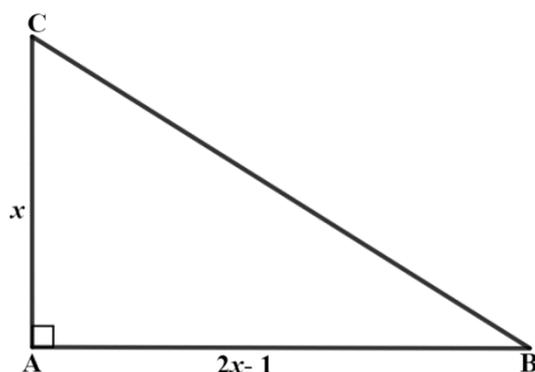Give your answer to 1 decimal place.   **[4marks]**

4 ABCD is a square of side 1 cm

CEFG is a rectangle of area 50 cm²
Calculate the direct distance between A and F
Give your answer as a simplified surd
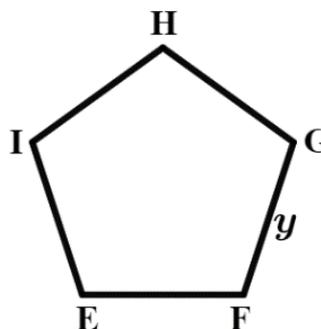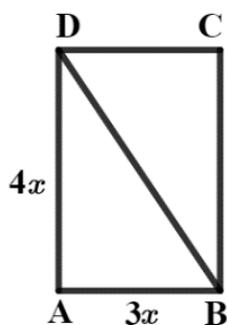
[4marks]

5 ABC is a right-angled triangle

AC = x

AB = $2x - 1$

Given that the area of the triangle is 3 cm²,
calculate the exact perimeter of the triangle.

[6marks]

6 ABCD is a rectangle

EFGHI is a regular pentagon

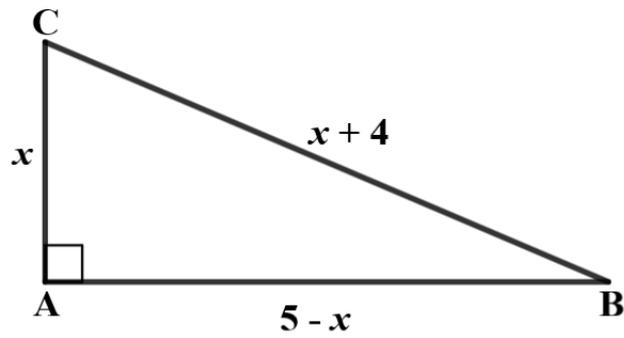AB = $3x$

AD = $4x$

BD = $10\sqrt{5}$ cm

FG = y

The two shapes have the same perimeter

Find the values of x and y

Give your answers to 3 significant figures

[6marks]

7 ABC is a right-angled triangle

AB $= 5 - x$

AC $= x$

BC $= x + 4$

Calculate the value of x

Give your answer to 3 decimal places

[5marks]