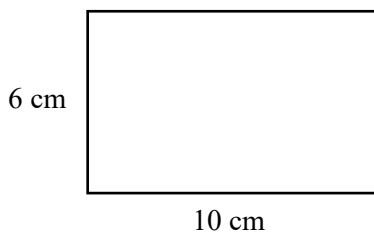# Area of Shapes

REVISE THIS TOPIC

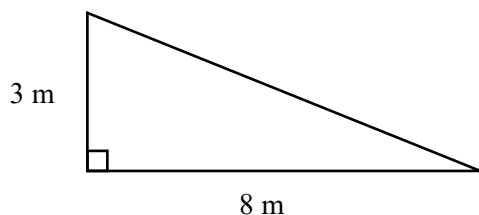**1**

6 cm

10 cm

Work out the area of the rectangle giving the units of your answer.

6×10

$60 \, cm^2$

(Total for Question 1 is 2 marks)

2

3 m

8 m

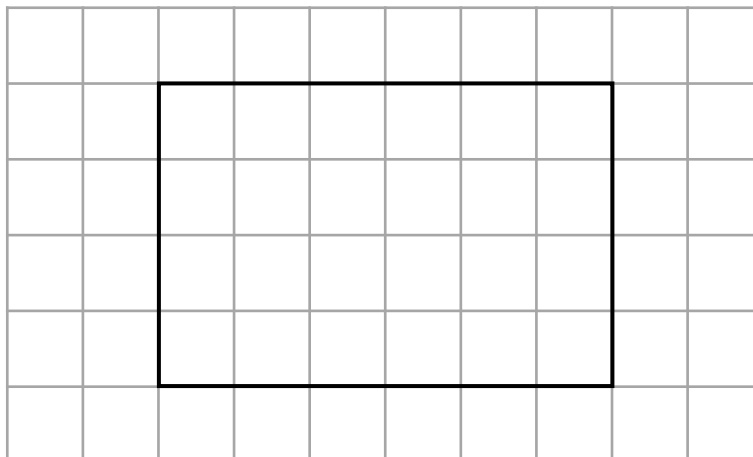Work out the area of the triangle giving the units of your answer.

$\frac{1}{2} \times 8 \times 3$

$12 \, m^2$

(Total for Question 2 is 2 marks)

1
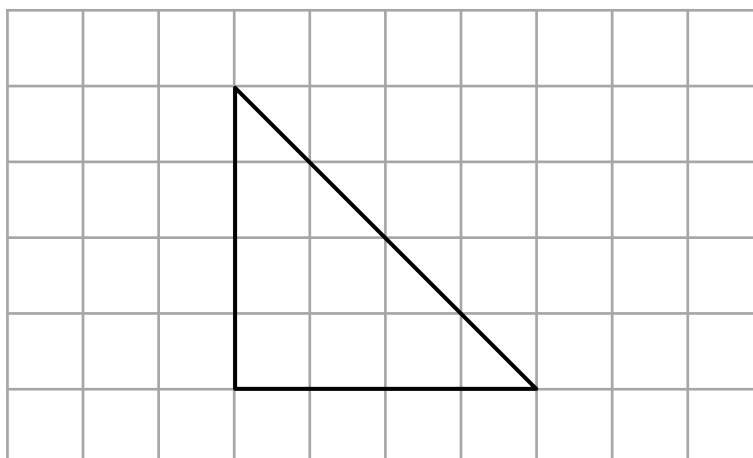
© 2024 1stclassmaths @1stclassmaths

3 A rectangle is drawn on a centimetre grid.

(a) Work out the area of the rectangle.

24 .... cm²
(1)

A triangle is drawn on a centimetre grid.

(b) Work out the area of the triangle.

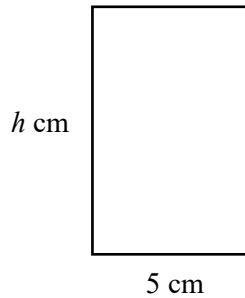8 .... cm²
(1)

(Total for Question 3 is 2 marks)

2

4 The rectangle has a base of 5 cm and a height of h cm.

h cm

5 cm

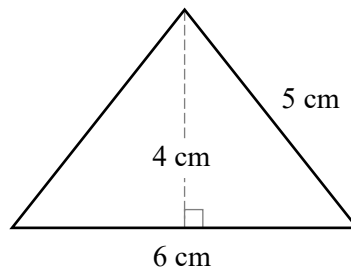The area of the rectangle is 40 cm^2
Work out the value of h.

$40 \div 5$

8 cm

(Total for Question 4 is 1 mark)

5

5 cm

4 cm

6 cm

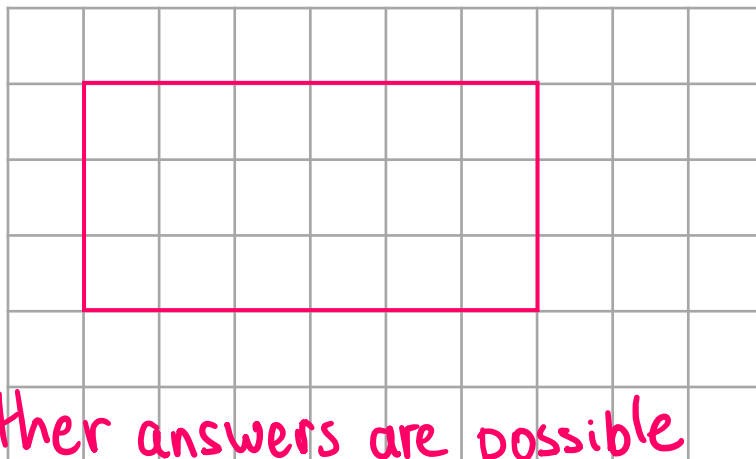Work out the area of the triangle.

$\frac{1}{2} \times 6 \times 4$

12 cm^2

(Total for Question 5 is 2 marks)

3

6 (a) On the centimetre grid below, draw a rectangle with an area of 18 cm^2

Other answers are possible

(1)

(b) On the centimetre grid below, draw a triangle with an area of 12 cm^2

Other answers are possible
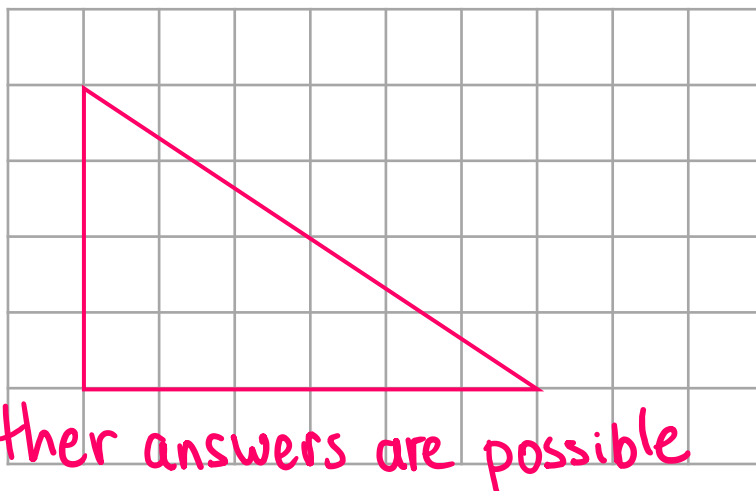
(1)

(c) On the centimetre grid below, draw a parallelogram with an area of 15 cm^2

Other answers are possible

(1)
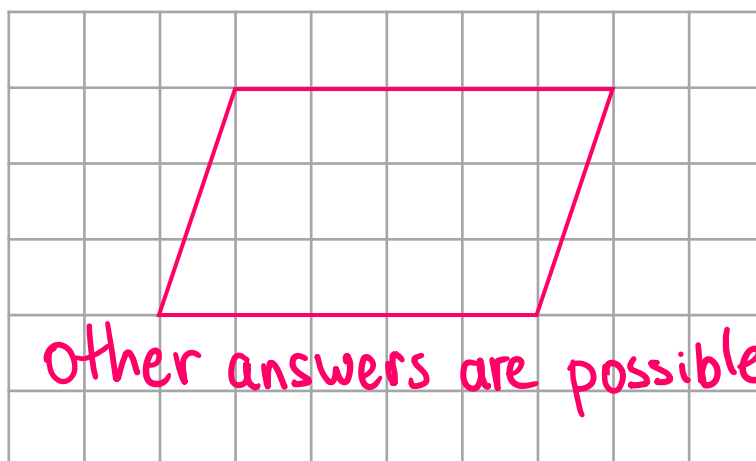
(Total for Question 6 is 3 marks)

4

7

4 cm
5 cm
9 cm
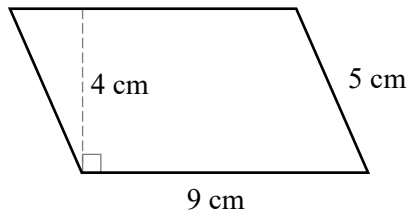
Work out the area of the parallelogram.

$$9 \times 4$$

36 .... cm²

(Total for Question 7 is 2 marks)

8

8 cm
5 cm
10 cm
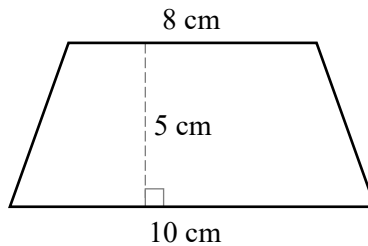
Work out the area of the trapezium.

$$\tfrac{1}{2}(8 + 10) \times 5$$
$$= \tfrac{1}{2}(18) \times 5$$
$$= 9 \times 5$$

45 .... cm²

(Total for Question 8 is 2 marks)

5

9 Here is a square, triangle and parallelogram.

Square   **Triangle**   **Parallelogram**
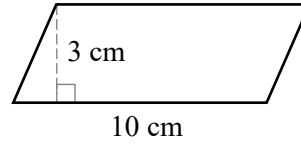
6 cm

5 cm   8 cm   3 cm
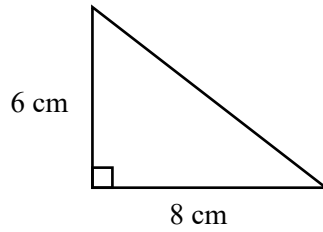
10 cm

Put the shapes in order of area, starting with the smallest.

Square $5 \times 5 = 25 \text{ cm}^2$

Triangle $\frac{1}{2} \times 8 \times 6 = 24 \text{ cm}^2$
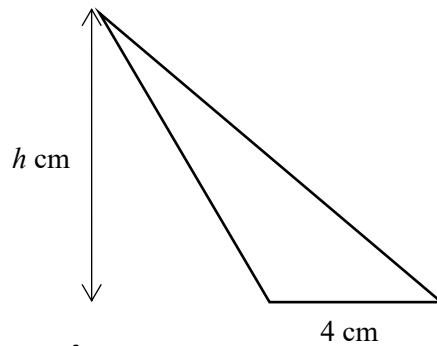
Parallelogram $10 \times 3 = 30 \text{ cm}^2$

Triangle Square Parallelogram

(Total for Question 9 is 3 marks)

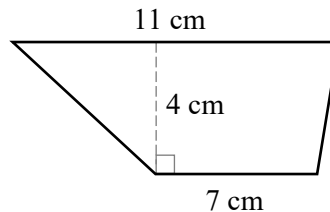**10** A triangle has a base of 4 cm and a perpendicular height of *h* cm.

h cm

4 cm

The area of the triangle is 20 cm²
Work out the value of *h*.

$$\frac{1}{2} \times 4 \times h = 20$$
$$2h = 20$$
$$h = 10$$

h = _____**10**_____ cm

(Total for Question 10 is 2 marks)

11

11 cm

4 cm

7 cm

Work out the area of the trapezium.

$$\frac{1}{2}(7 + 11) \times 4$$
$$= \frac{1}{2}(18) \times 4$$
$$= 9 \times 4$$

_____**36**_____ cm²

(Total for Question 11 is 2 marks)

7

12 A parallelogram is drawn on a centimetre grid.
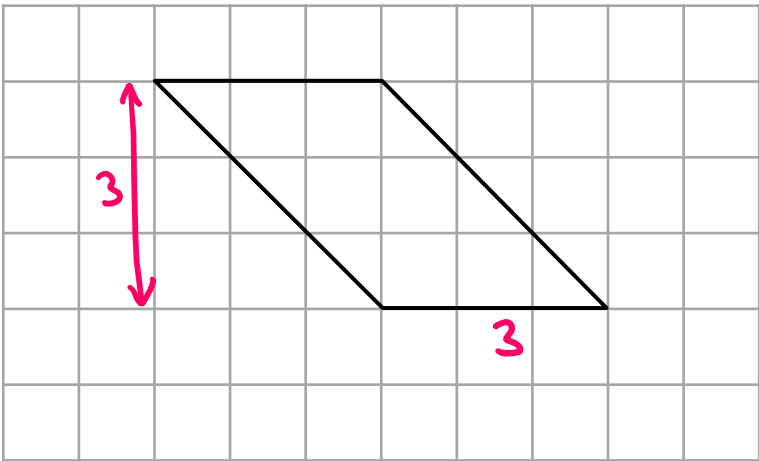
    (a) Work out the area of the parallelogram.

9

.... cm^2

(1)

A trapezium is drawn on a centimetre grid.
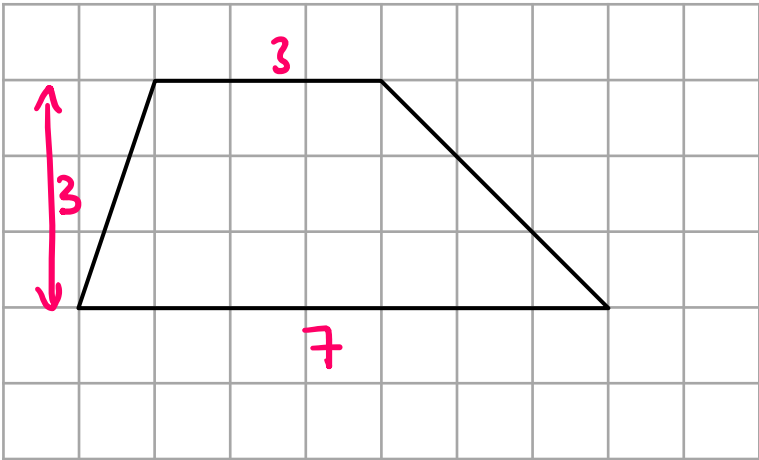
    (b) Work out the area of the trapezium.

15

.... cm^2

(2)

(Total for Question 12 is 3 marks)

13

8 cm

6 cm

10 cm
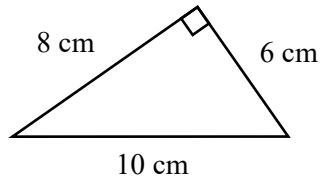
Work out the area of the triangle.

½ × 8 × 6

24

.... cm²

(Total for Question 13 is 2 marks)

14

250 cm

2.5m

3 m
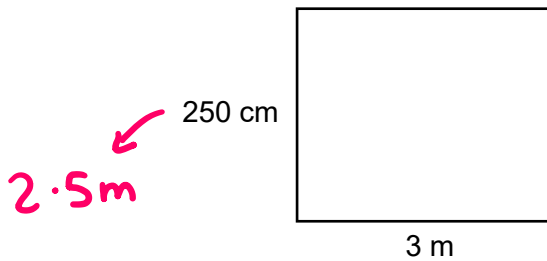
Work out the area of the rectangle.
Give your answer in square metres.

2.5 × 3

7.5

.... m²

(Total for Question 14 is 2 marks)

9

15 Here is a rectangle and a triangle.

h cm

10 cm

4 cm

7 cm
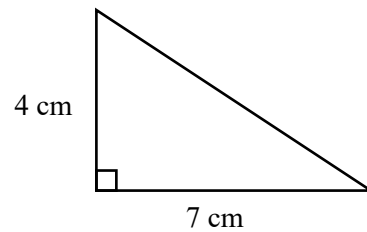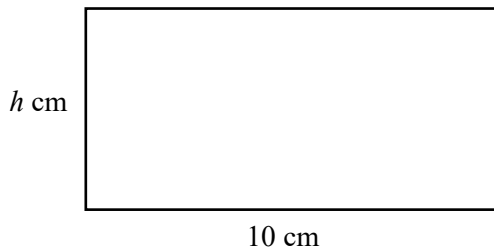
The area of the rectangle is 3 times the area of the triangle.
Work out *h*, the height of the rectangle.

Area of triangle = ½ × 7 × 4
                 = 14 cm²

3 × 14 = 42 cm²
42 ÷ 10 = 4.2

h = ...**4.2**...... cm

(Total for Question 15 is 4 marks)

16 A square has side length 3.2 cm
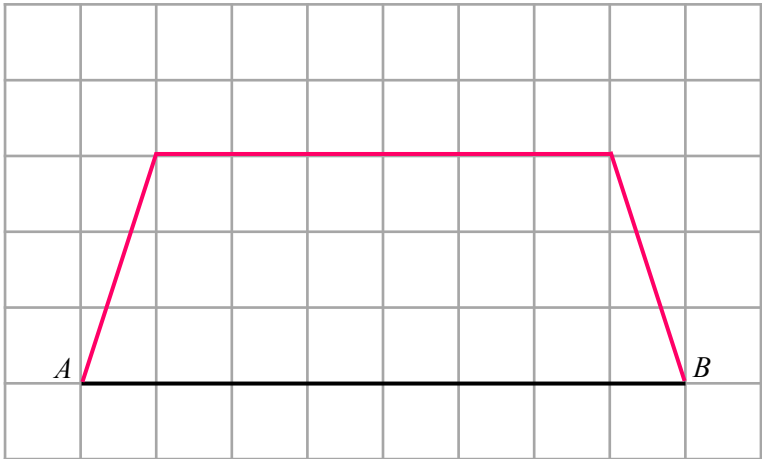Work out the area of the square, giving your answer in square centimetres.

3.2 × 3.2

```
   32
   32
 ----
   64
  960
 ----
10.24
```

......**10.24**...... cm²

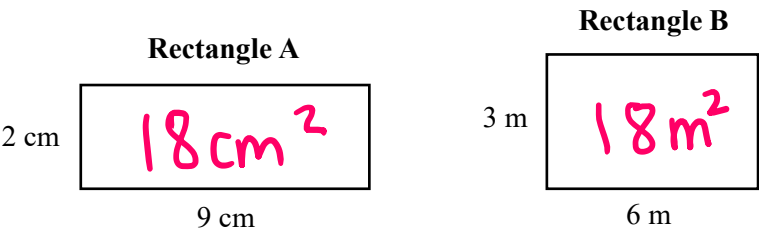**(Total for Question 16 is 3 marks)**

10

© 2024 1stclassmaths

17 The line *AB* is one side of a trapezium *ABCD* which has an area of 21cm²
The line *AB* has been drawn on the centimetre grid below.

Complete a possible trapezium *ABCD*.

(Total for Question 17 is 2 marks)

18 Here are two rectangles.

Rectangle A

2 cm

18cm²

9 cm

Rectangle B

3 m

18m²

6 m
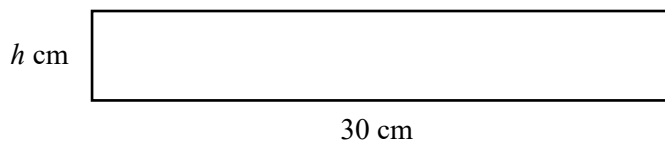
Aaron says "Rectangle A and rectangle B have the same area"

Is Aaron correct?
Give a reason for your answer.

No — 18m² is bigger than 18cm²

(Total for Question 18 is 1 mark)

11

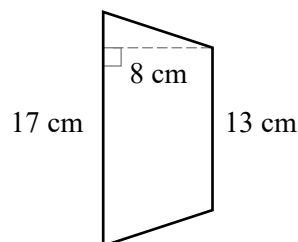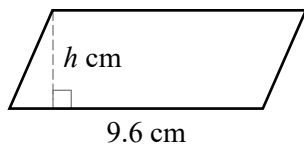**19** A rectangle has a base of 30 cm and a height of h cm.

h cm

30 cm

The area of the rectangle is 15 cm^2
Work out the value of h.

$$15 \div 30 = 0 \cdot 5$$

$0 \cdot 5$ .... cm

(Total for Question 19 is 1 marks)

20 Here is a parallelogram and a trapezium

h cm

9.6 cm

8 cm

17 cm   13 cm

The area of the parallelogram one fifth of the area of the trapezium
Work out h, the perpendicular height of the parallelogram.

$$\tfrac{1}{2}(13 + 17) \times 8$$
$$= \tfrac{1}{2}(30) \times 8$$
$$= 15 \times 8$$
$$= 120 \text{ cm}^2$$

$$120 \div 5 = 24$$

$$24 \div 9.6 = 2 \cdot 5$$

$2 \cdot 5$ .... cm

(Total for Question 20 is 4 marks)

1st

12

21 Five congruent rectangles are joined to make rectangle *ABCD*.

A 10 2·5 *C*

2·5 {

10 cm

B *D*
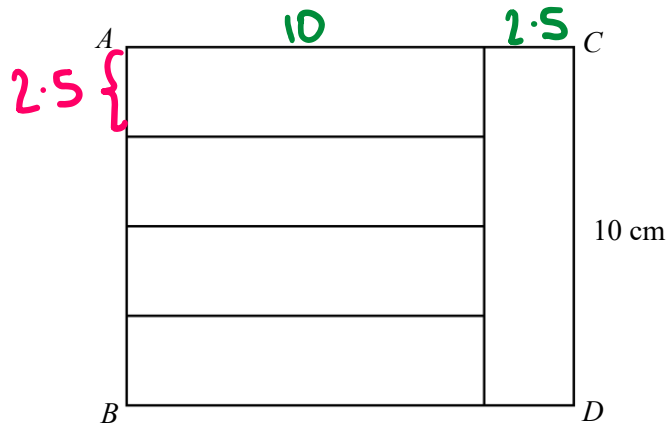
Work out the area of rectangle *ABCD*.

$10 \div 4 = 2.5$

$10 + 2.5 = 12.5$

$12.5 \times 10 = 125$

125 .... cm²

(Total for Question 21 is 4 marks)

© 2024 1stclassmaths

22 Points *A* and *B* are shown on the centimetre grid below.
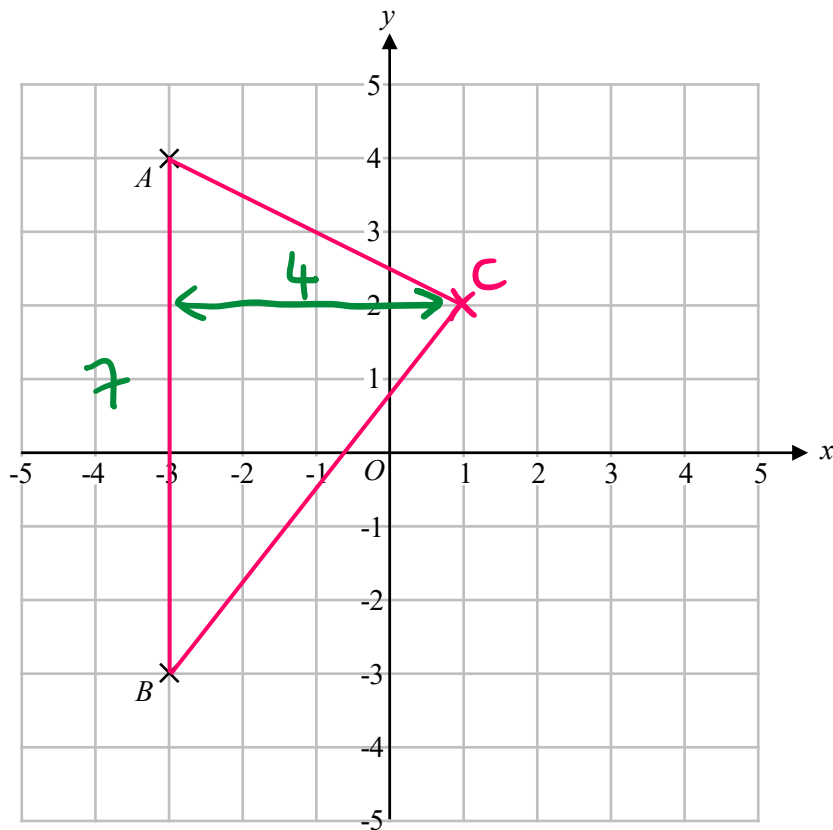
$C = (1, 2)$

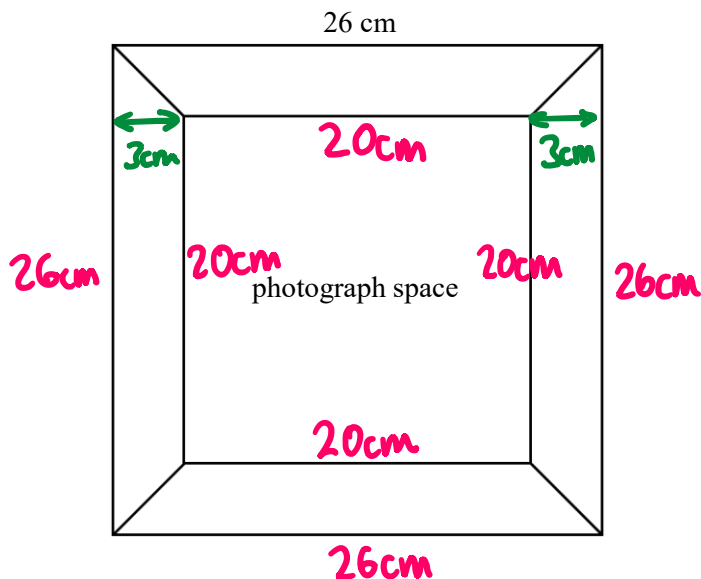Work out the area of triangle *ABC*.

$\frac{1}{2} \times 7 \times 4$

14

.... cm^2

(Total for Question 22 is 3 marks)

© 2024 1stclassmaths

23 A picture frame is made from four congruent trapeziums.

26 cm

20cm

3cm   3cm

26cm   20cm   photograph space   20cm   26cm

20cm

26cm

The width of the picture frame is 26 cm.
A square photograph will be placed in the photograph space.
The area of the photograph space is 400 cm^2

Work out the area of one of the trapeziums that forms the picture frame.

$\sqrt{400} = 20\ cm$

$26 - 20 = 6$
$6 \div 2 = 3$

$\frac{1}{2}(20 + 26) \times 3$
$= \frac{1}{2}(46) \times 3$
$= 23 \times 3$

69

.... cm^2

(Total for Question 23 is 4 marks)

15

24 *ABC* is a triangle.

C

9cm

Not drawn
accurately

A 3cm D 12cm B
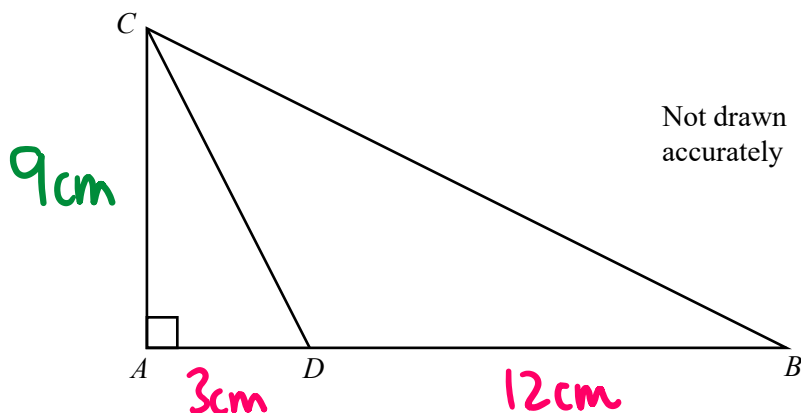
ABD is a straight line.

AB = 15 cm
AD : *DB* = 1 : 4
AD : *AC* = 1 : 3

Work out the area of triangle *BCD*.

$1 + 4 = 5$

$15 \div 5 = 3$

$1 \times 3 = 3cm$

$4 \times 3 = 12cm$

AD : AC

$\times 3 \left(\begin{array}{c} 1 : 3 \\ 3 : 9 \end{array} \right) \times 3$

AC = 9 cm

$\frac{1}{2} \times 12 \times 9 = 54 \, cm^2$

54 .... cm²

(Total for Question 24 is 4 marks)