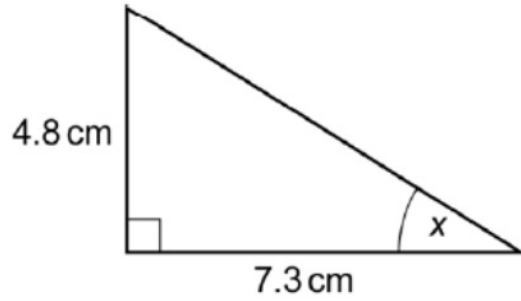


G18 Area-Triangles

OCR

6 The diagram shows a right-angled triangle.



Not to scale

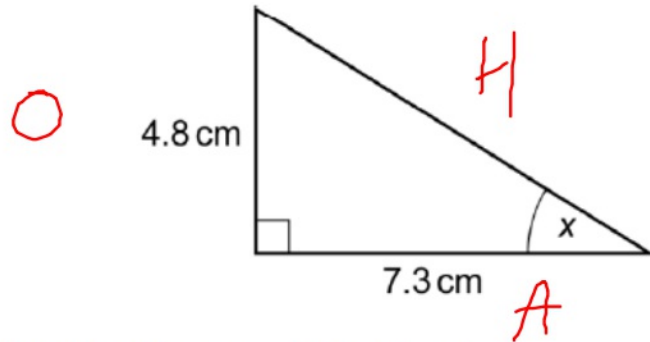
(a) Calculate the area of the triangle.

(a) cm^2 [2]

(b) Calculate angle x .

(b) $x = \text{.....}^\circ$ [3]

- 6 The diagram shows a right-angled triangle.



Not to scale

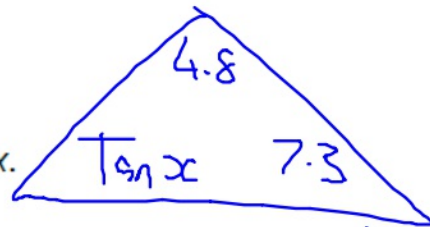
S^OH C^AH T^OA ✓

- (a) Calculate the area of the triangle.

$$\frac{B \times H}{2} = \frac{7.3 \times 4.8}{2} =$$

(a) 17.52 cm² [2]

- (b) Calculate angle x .



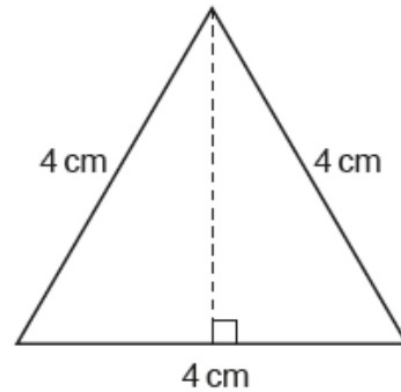
$$\tan x = \frac{4.8}{7.3} = 0.6575\dots$$

$$x = \tan^{-1} \text{ of } 0.657\dots$$

(b) $x =$ 33.3° ✓ [3]

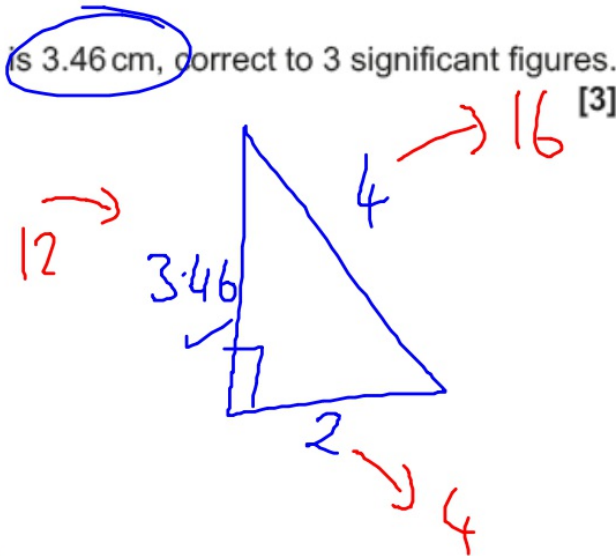
11 The diagram shows an equilateral triangle.

Created by



Not to scale

(a) (i) Show that the height of the equilateral triangle is 3.46 cm, correct to 3 significant figures.



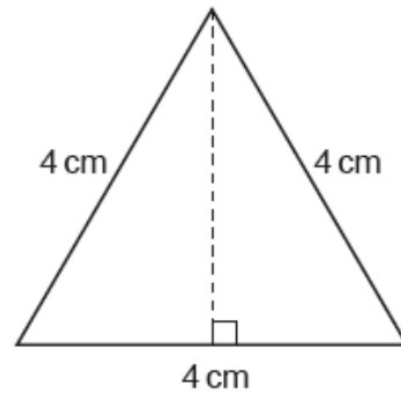
(ii) Find the area of the equilateral triangle.

$$\frac{B \times H}{2} = \frac{4 \times 3.46}{2} = 6.92 \checkmark$$

(a)(ii) cm² [2]

11 The diagram shows an equilateral triangle.

Created by



Not to scale

(a) (i) Show that the height of the equilateral triangle is 3.46 cm, correct to 3 significant figures. [3]

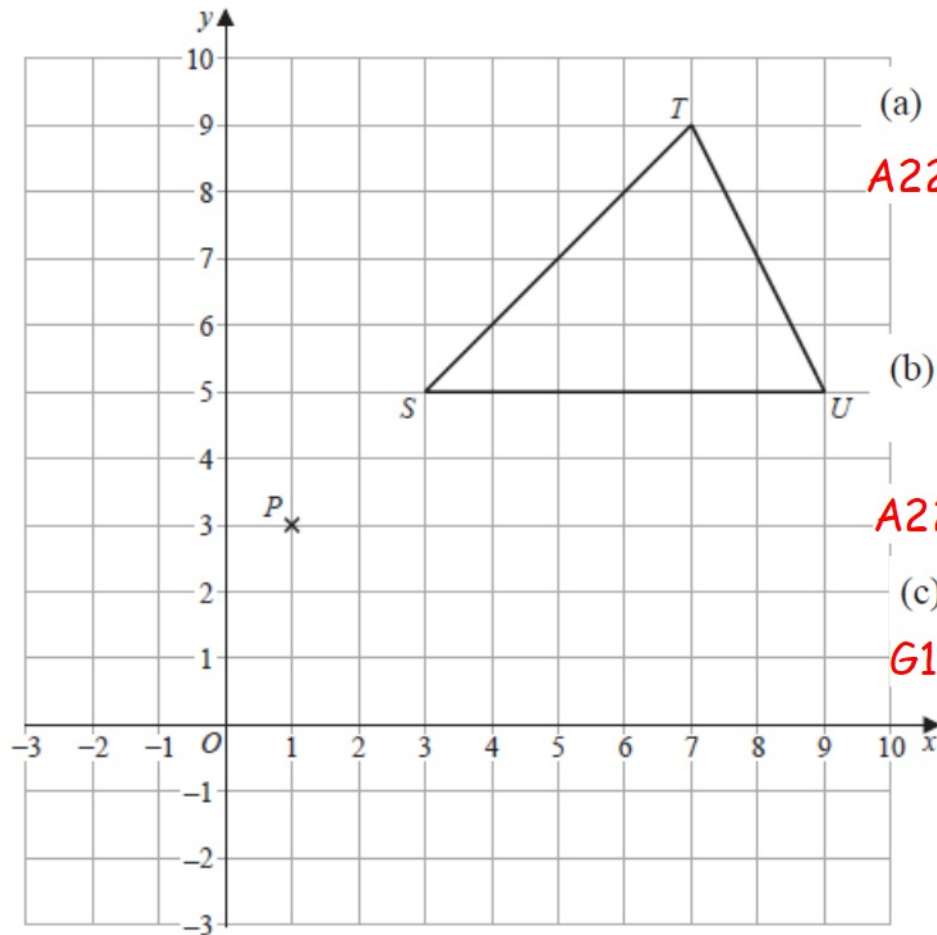
(ii) Find the area of the equilateral triangle.

(a)(ii) cm² [2]

Edexcel

8 Here is a centimetre grid.

Video create



(a) Write down the coordinates of the point P .

A22

(.....,.....)

(1)

(b) Plot the point with coordinates $(-1, -2)$
Label this point R .

(1)

A22

(c) Find the area of triangle STU .

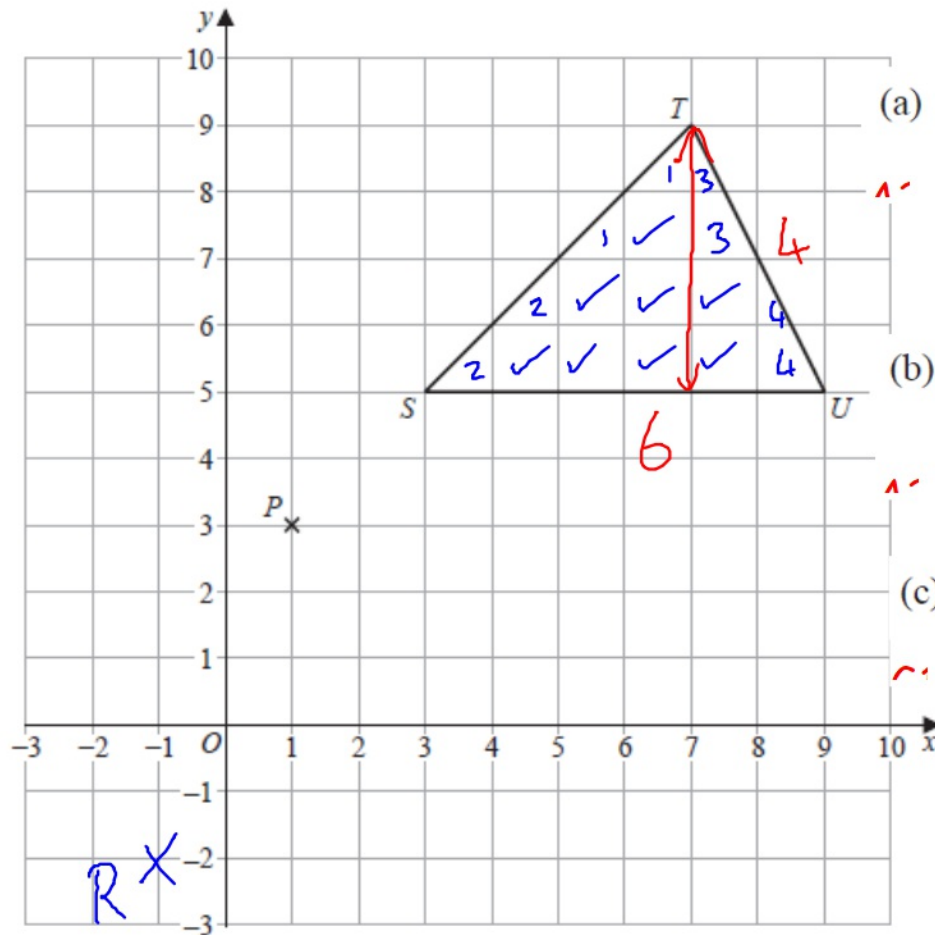
G18

..... cm^2

(2)

8 Here is a centimetre grid.

Video create



(a) Write down the coordinates of the point P .

(..... 1, 3) (1)

(b) Plot the point with coordinates $(-1, -2)$. Label this point R . (1)

(c) Find the area of triangle STU .

.....

$$\frac{B \times H}{2} = \frac{6 \times 4}{2} = \frac{24}{2}$$

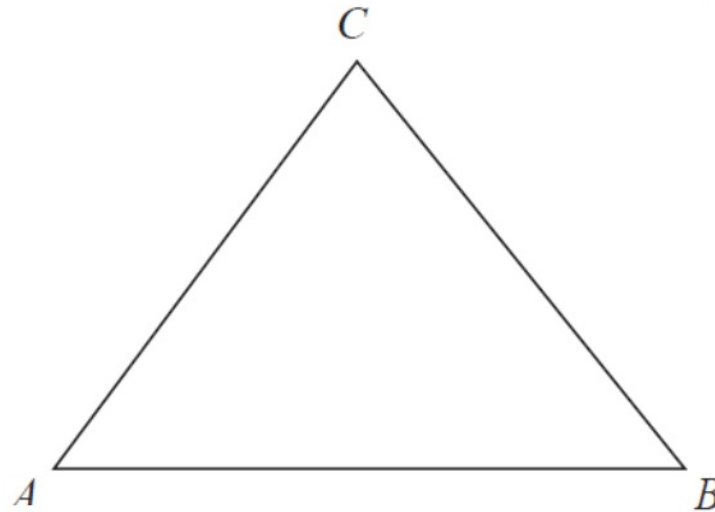
..... 12 cm^2 (2)

26 The diagram shows triangle ABC .

R15a

G18

G44



The perimeter of the triangle is 64 cm.

$$AB : BC : CA = 6 : 5 : 5$$

Work out the area of the triangle.

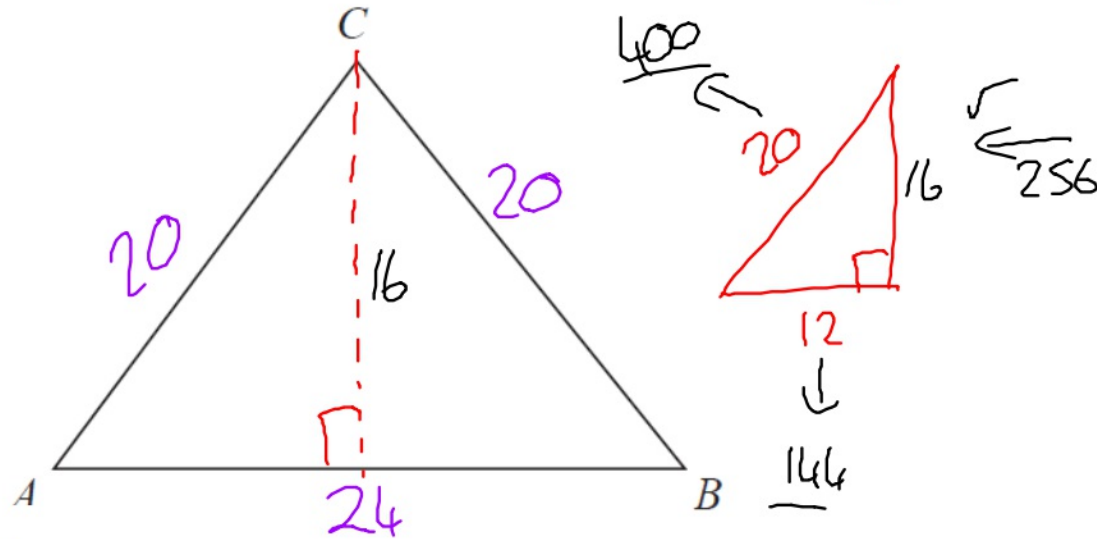
.....cm²

(Total for Question 26 is 5 marks)

26 The diagram shows triangle ABC .

R15a
G18
G44

$$\text{Area} = \frac{B \times H}{2}$$



The perimeter of the triangle is 64 cm.

$$AB : BC : CA = 6 : 5 : 5 \quad 16 \text{ parts}$$

Work out the area of the triangle.

$$\begin{aligned} 64 \text{ cm} &= 16 \text{ part} \\ 4 \text{ cm} &= 1 \text{ part} \end{aligned}$$

$$6 : 5 : 5$$

\swarrow \downarrow \downarrow
 24 20 20

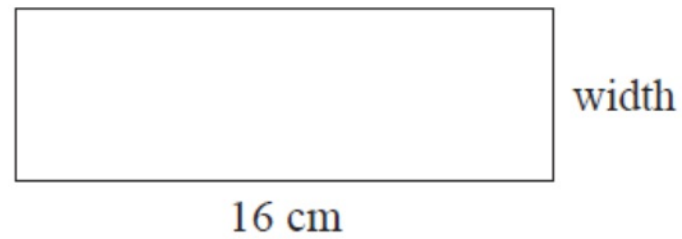
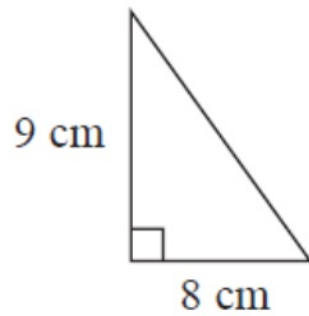
$$\frac{B \times H}{2} = \frac{24 \times 16}{2}$$

$$192 \text{ cm}^2$$

(Total for Question . . . is 5 marks)

15 Here are a triangle and a rectangle.

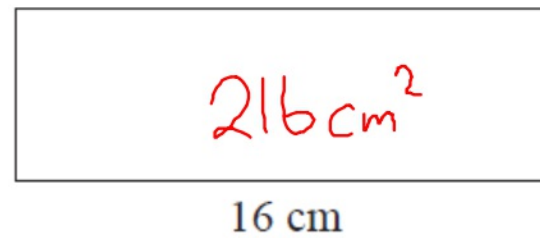
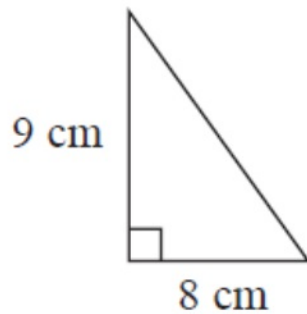
Video created by W Neill



The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.

15 Here are a triangle and a rectangle.



Video creator:

$$L \times W = 216$$

The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.

Area of triangle

$$\frac{B \times H}{2} = \frac{9 \times 8}{2}$$

$$= \frac{72}{2} = 36 \text{ cm}^2$$

Rectangle
36 x 6

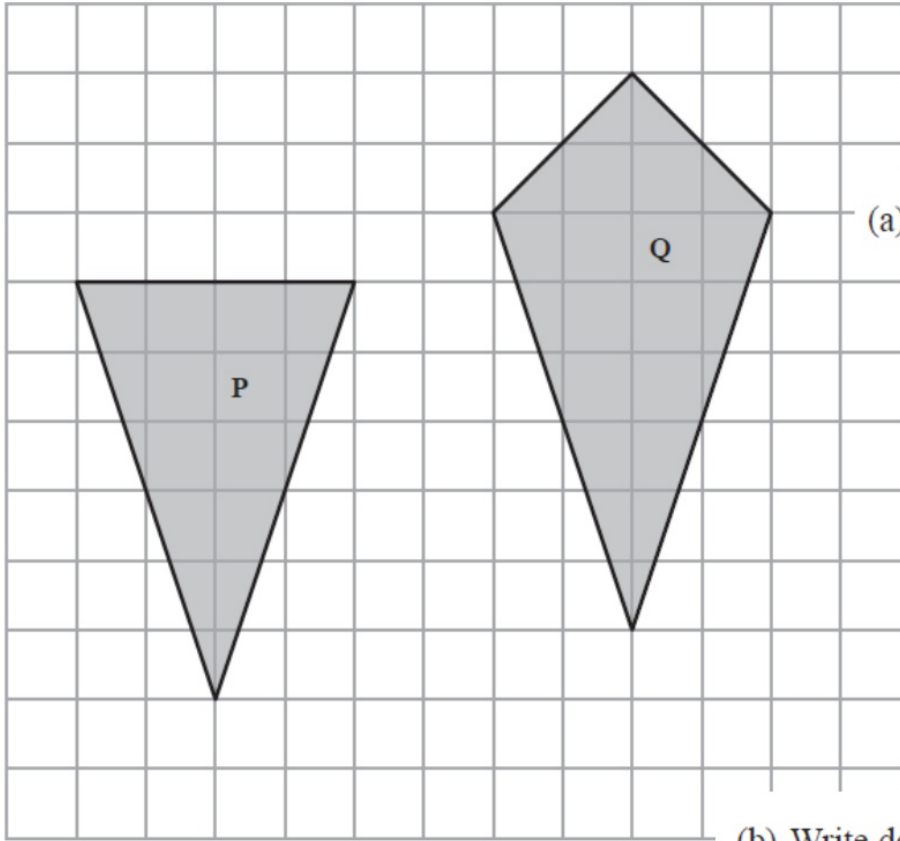
$$\begin{array}{r} 36 \\ \times 6 \\ \hline 216 \text{ cm}^2 \end{array}$$

$$\begin{array}{r} 13.5 \\ \hline 16 \overline{) 216.00} \\ \underline{16} \\ 56 \\ \underline{48} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

13.5 cm ✓

10 The diagram shows two shapes drawn on a centimetre grid.

Created by

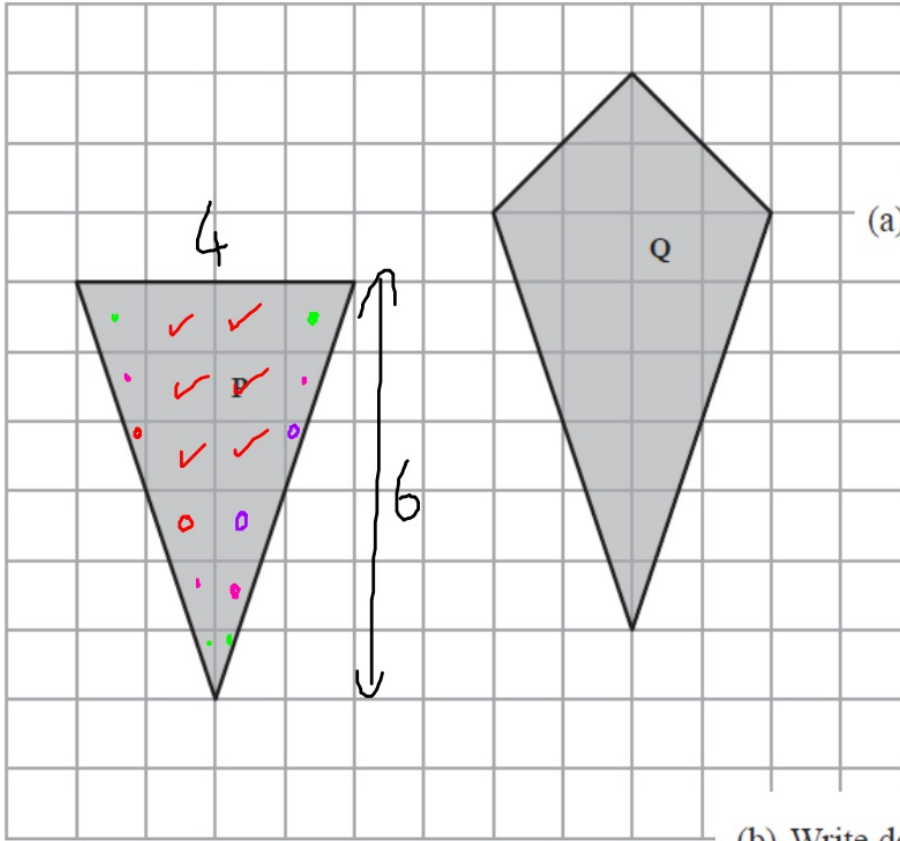


(a) Find the area of shape P.

(b) Write down the mathematical name of quadrilateral Q.

10 The diagram shows two shapes drawn on a centimetre grid.

Created by



(a) Find the area of shape P.

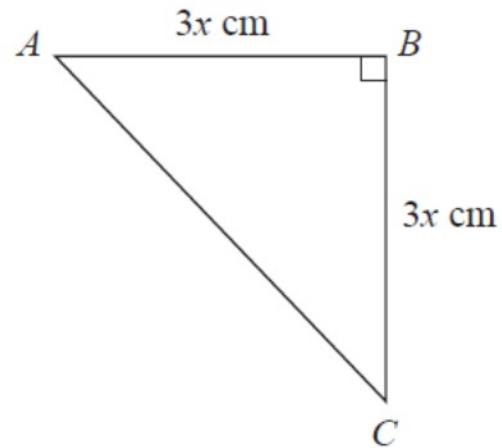
12cm²

$$\frac{B \times H}{2} \quad \frac{4 \times 6}{2} = 12\text{cm}^2$$

(b) Write down the mathematical name of quadrilateral Q.

kite

17 ABC is an isosceles right-angled triangle.



The area of the triangle is 162 cm^2

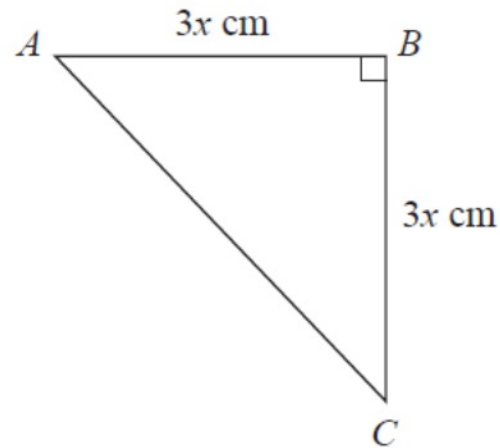
Work out the value of x .

$x = \dots\dots\dots$

Question 17 is 3 marks)

17 ABC is an isosceles right-angled triangle.

G18
A16



The area of the triangle is 162 cm^2

Work out the value of x .

$$x^2 = 36$$

$$x = \sqrt{36}$$

$$x = 6 \text{ cm} \checkmark$$

$$\frac{B \times H}{2} = 162 \text{ cm}^2$$

$$\frac{3x \times 3x}{2} = 162 \text{ cm}^2$$

$$\frac{9x^2}{2} = 162 \text{ cm}^2$$

$$9x^2 = 324 \text{ cm}^2$$

$$x^2 = \frac{324}{9} = 36$$

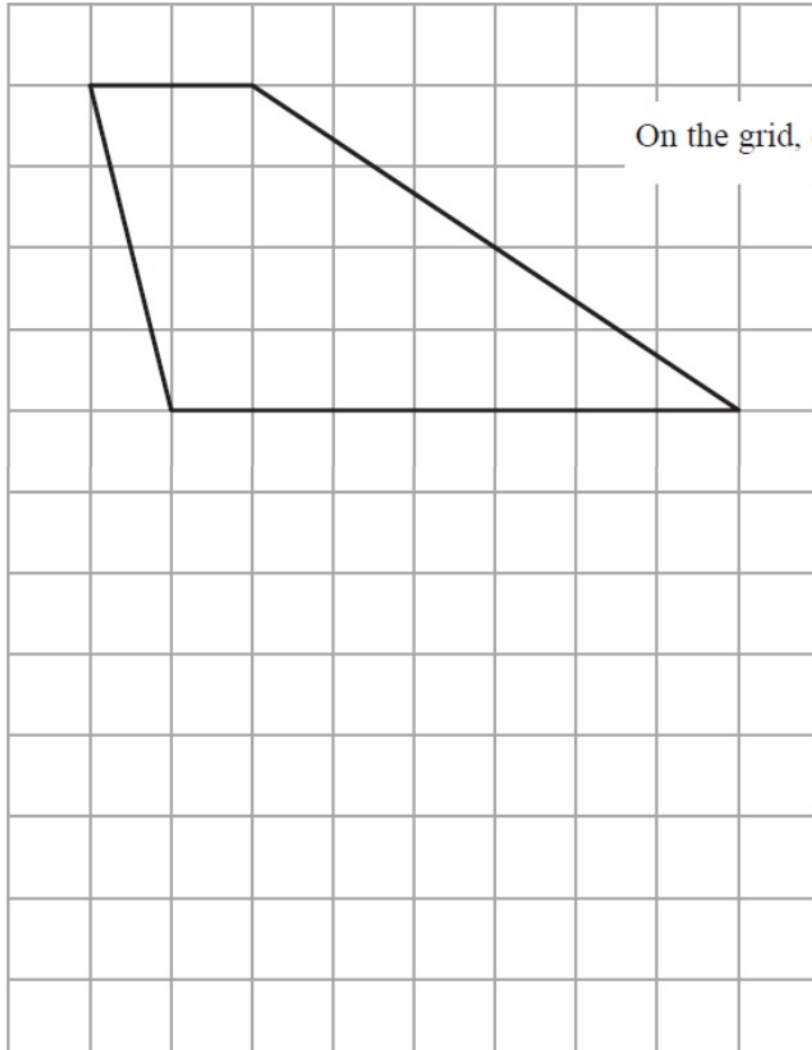
$$x = \dots\dots\dots$$

Question 17 is 3 marks)

21 Here is a trapezium drawn on a centimetre grid.

Video created by W Neill

G18
G19

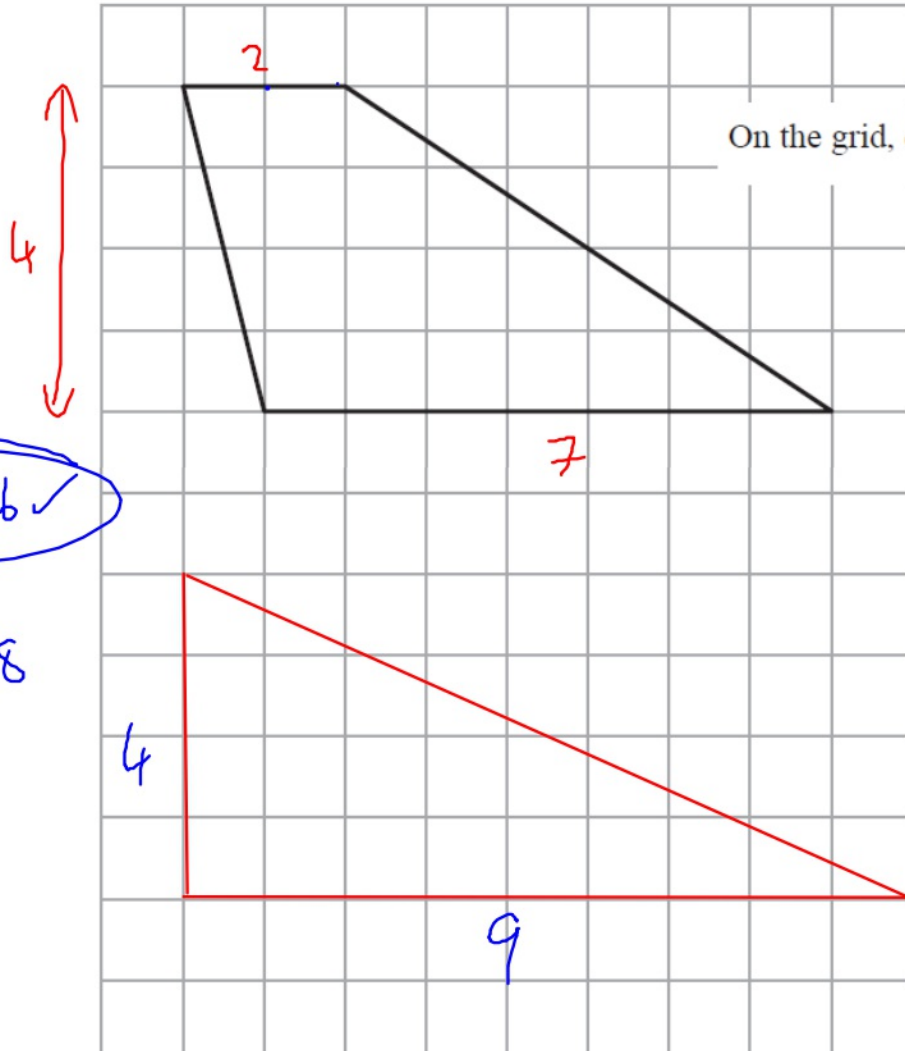


On the grid, draw a triangle equal in area to this trapezium.

(Total for Question 21 is 2 marks)

21 Here is a trapezium drawn on a centimetre grid.

G18
G19



On the grid, draw a triangle equal in area to this trapezium.

$$\frac{1}{2}(a+b)h$$

$$\frac{1}{2}(2+7)4$$
$$= 18\text{cm}^2$$



$$= 18\text{cm}^2$$

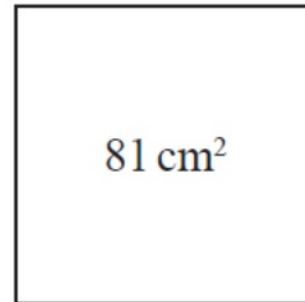
$$B \times H = 36$$
$$\frac{B \times H}{2} = 18$$

(Total for Question 21 is 2 marks)

$$B \times H = 36 \checkmark$$

$$\frac{36}{2} = 18$$

13 A square has an area of 81 cm^2



(a) Find the perimeter of the square.

G15

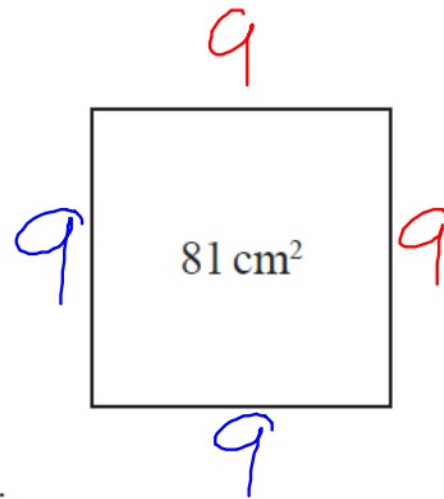
G17

.....cm

(2)

13 A square has an area of 81 cm^2

$$\text{Area} = X^2 = 81$$
$$\sqrt{81} = 9$$



$$9 \times 9 = 81$$

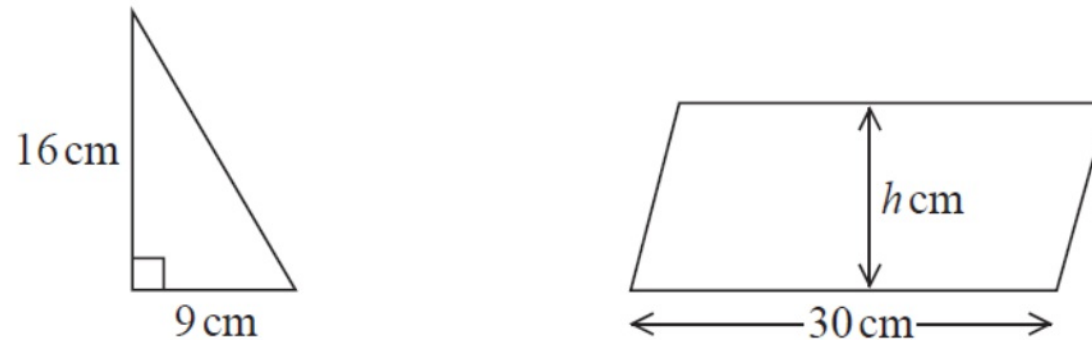
(a) Find the perimeter of the square.

G15
G17

$$\rightarrow 9 + 9 + 9 + 9$$
$$\text{or } 9 \times 4 = 36$$

.....36.....cm
(2)

The diagram shows a right-angled triangle and a parallelogram.



The area of the parallelogram is 5 times the area of the triangle.
The perpendicular height of the parallelogram is h cm.

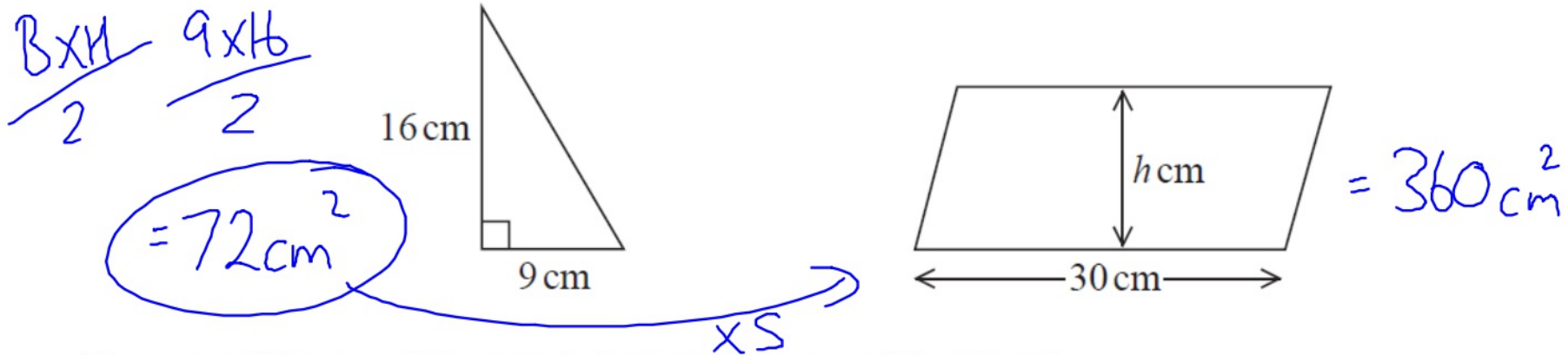
(b) Find the value of h .



$$h = \dots\dots\dots$$

(3)

The diagram shows a right-angled triangle and a parallelogram.



The area of the parallelogram is 5 times the area of the triangle.

The perpendicular height of the parallelogram is h cm.

(b) Find the value of h .

∴
∴

$$\begin{aligned} \text{Parallelogram} &= B \times H = 360 \\ 30 \times (h) &= 360 \end{aligned}$$

$$h = \underline{12} \text{ cm} \quad (3)$$

8 The perimeter of a right-angled triangle is 72 cm.

R15a The lengths of its sides are in the ratio 3 : 4 : 5

G18 Work out the area of the triangle.

.....cm²

(Total for Question 8 is 4 marks)

8 The perimeter of a right-angled triangle is 72 cm.

R15a The lengths of its sides are in the ratio 3 : 4 : 5

G18 Work out the area of the triangle.

$$72 \text{ cm} = 12 \text{ parts}$$

$$6 \text{ cm} = 1 \text{ part}$$

$$3 : 4 : 5$$

$$\begin{array}{ccc} \swarrow & \downarrow & \downarrow \\ 18 \text{ cm} & 24 \text{ cm} & 30 \text{ cm} \end{array}$$



$$\text{Area} = \frac{B \times H}{2}$$

$$= \frac{18 \times 24}{2}$$

$$\underline{\quad\quad\quad} 216 \text{ cm}^2$$

(Total for Question 8 is 4 marks)

$$\begin{array}{r} 24 \\ \times 18 \\ \hline 192 \\ 240 \\ \hline 432 \end{array}$$

$$\begin{array}{r} 216 \\ 2 \overline{) 432} \\ \underline{4} \\ 32 \\ \underline{32} \\ 0 \end{array}$$

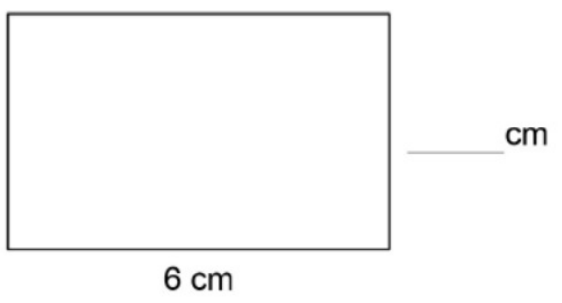
AQA

10 Each shape below has an area of 24 cm^2

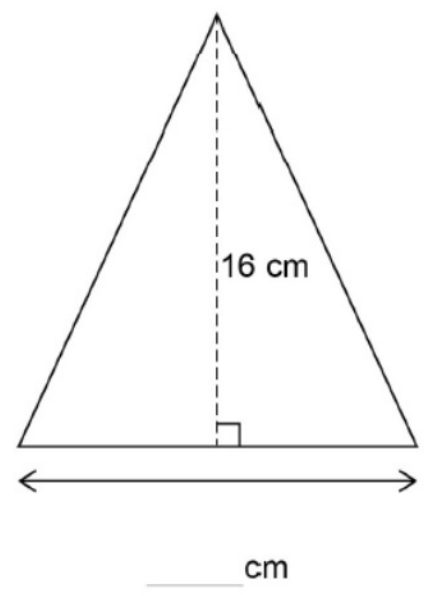
Complete the missing lengths.

[3 marks]

Rectangle



Triangle



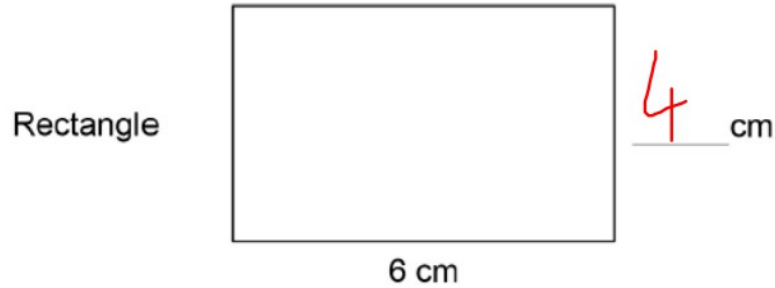
10

Each shape below has an area of 24 cm^2

G17
G18

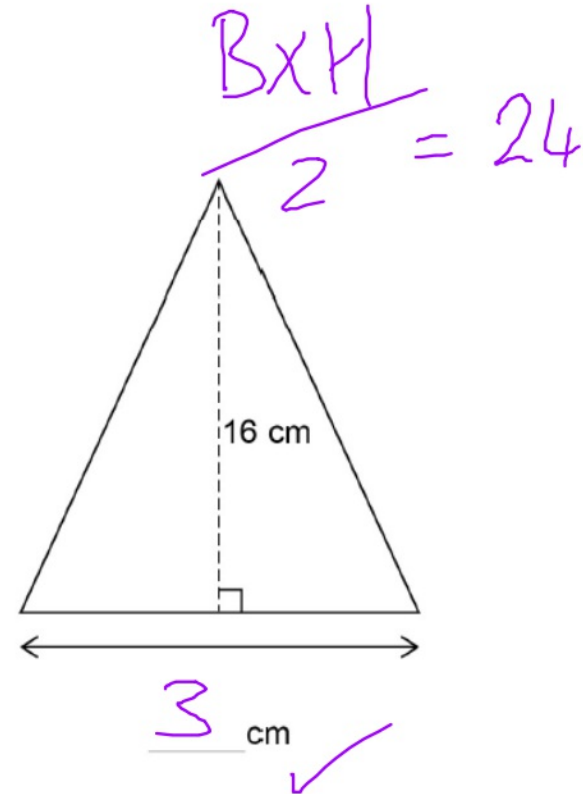
Complete the missing lengths.

[3 marks]



$$L \times W = 24$$
$$6 \times \boxed{4} = 24$$

Triangle



$$\frac{B \times H}{2} = 24$$
$$B \times H = 48$$
$$\boxed{3} \times 16 = 48$$

7 ABC is a right-angled triangle.

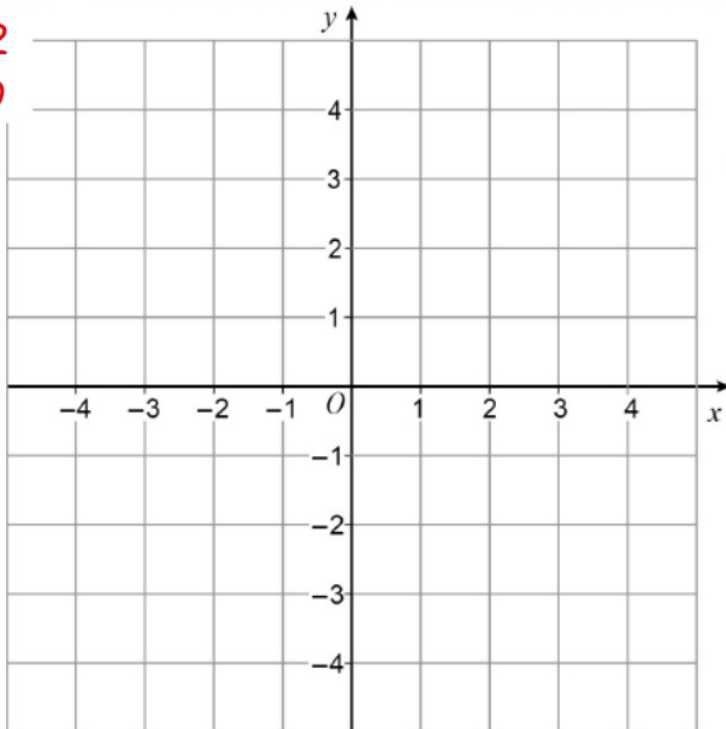
A is the point $(-3, -2)$

B is the point $(1, -2)$

C is a point on the line $y = 4$

7 (a) Draw triangle ABC on the centimetre grid below. [3 marks]

A22
G39



7 (b) Work out the area of triangle ABC . [2 marks]
G18

Answer _____ cm^2

7 ABC is a right-angled triangle.

A is the point $(-3, -2)$

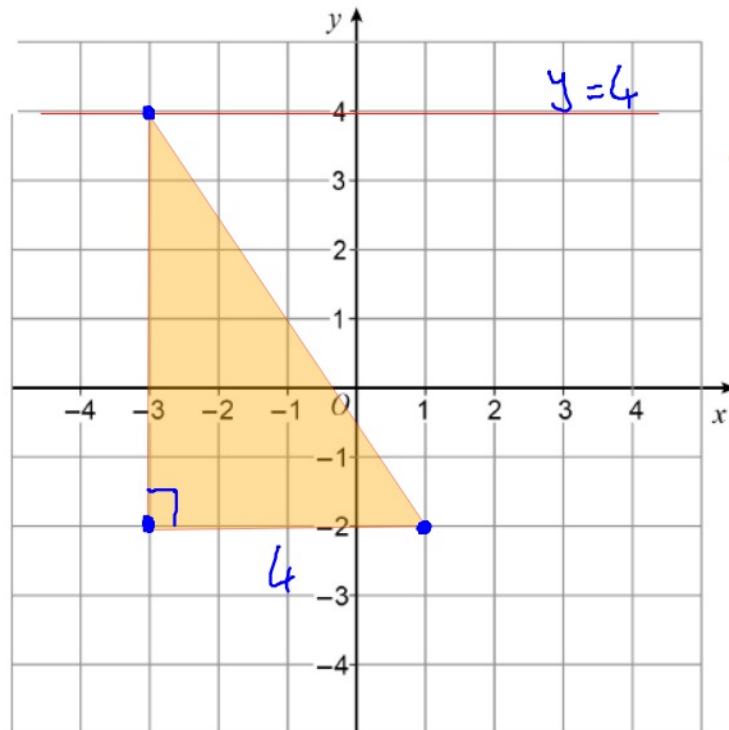
B is the point $(1, -2)$

C is a point on the line $y = 4$

Video created by W Neill

7 (a) Draw triangle ABC on the centimetre grid below. [3 marks]

A22
G39



7 (b) Work out the area of triangle ABC.

G18

[2 marks]

$$\frac{B \times H}{2} = \frac{4 \times 6}{2} = \frac{24}{2}$$

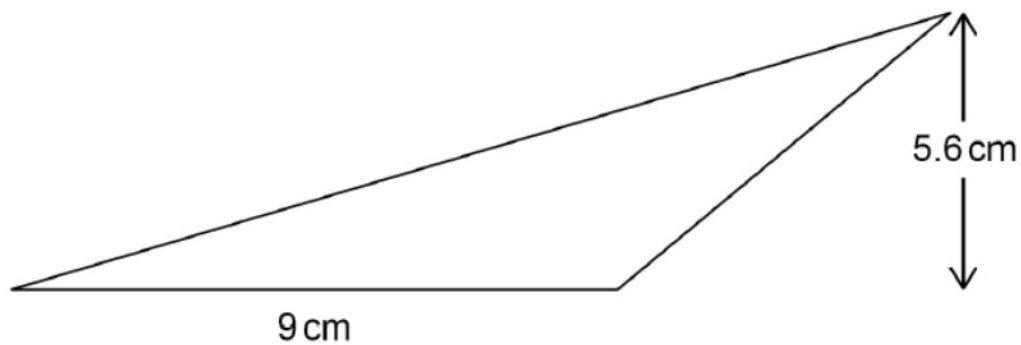
Answer 12 ✓ cm²

14

A triangle has base 9 cm and perpendicular height 5.6 cm

Not drawn
accurately

G18



Work out the area of the triangle.

[2 marks]

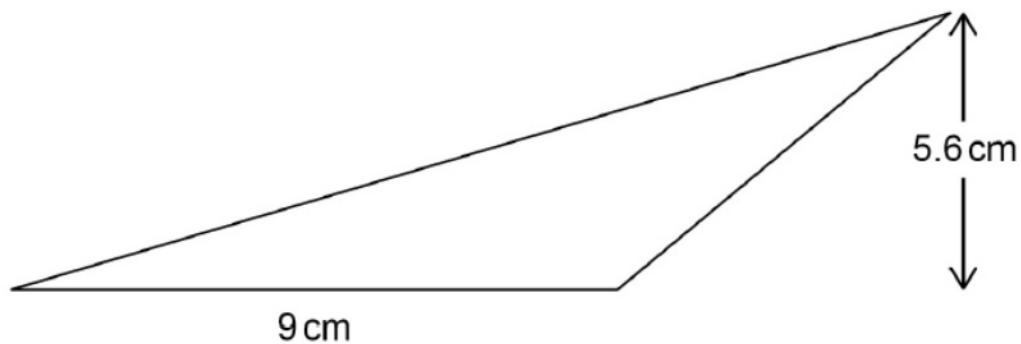
Answer _____ cm^2

14

A triangle has base 9 cm and perpendicular height 5.6 cm

Not drawn
accurately

G18



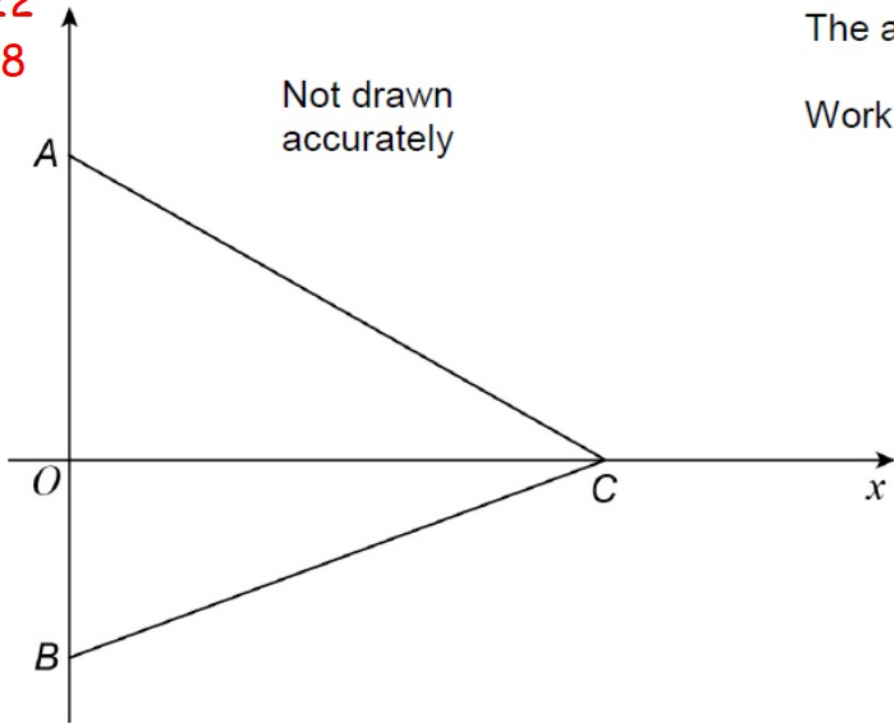
Work out the area of the triangle.

$$\frac{B \times H}{2} = \frac{9 \times 5.6}{2} \quad [2 \text{ marks}]$$
$$=$$

Answer 25.2 ✓ cm²

21 A, B and C are points on the axes as shown.

A22
G18



The area of triangle ABC is 28 square units.

Work out possible coordinates for A , B and C .

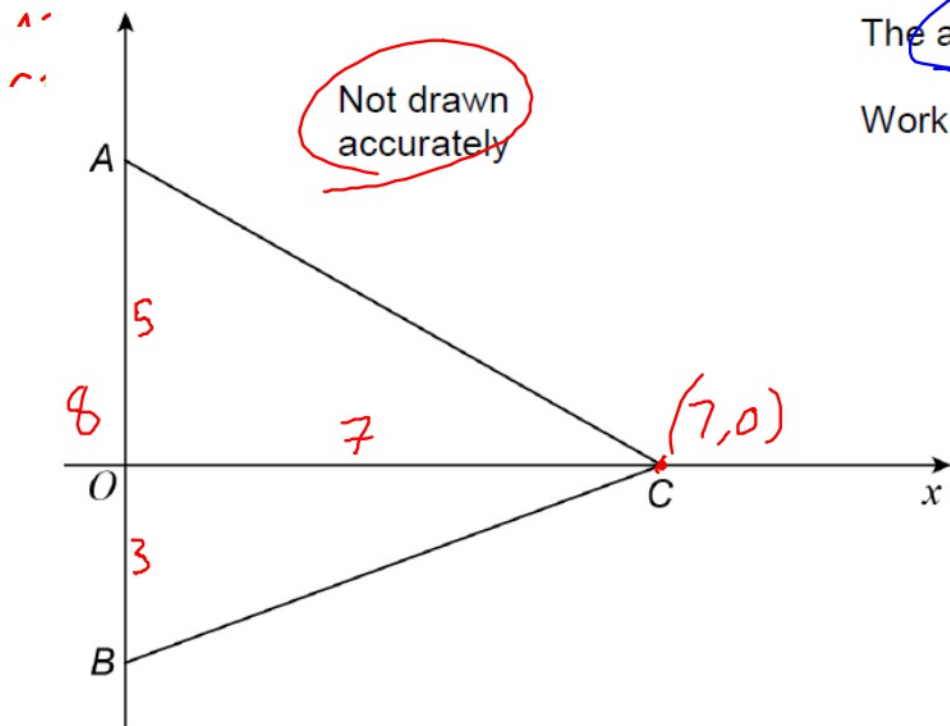
[2 marks]

A (_____ , _____) B (_____ , _____) C (_____ , _____)

21

A, B and C are points on the axes as shown.

Video answers



The area of triangle ABC is 28 square units.

Work out possible coordinates for A, B and C.

[2 marks]

$$\frac{B \times H}{2} = 28$$
$$\overset{14}{B} \times \overset{4}{H} = 56$$
$$8 \times 7 = 56$$

A (0 , 5) B (0 , -3) C (7 , 0)