

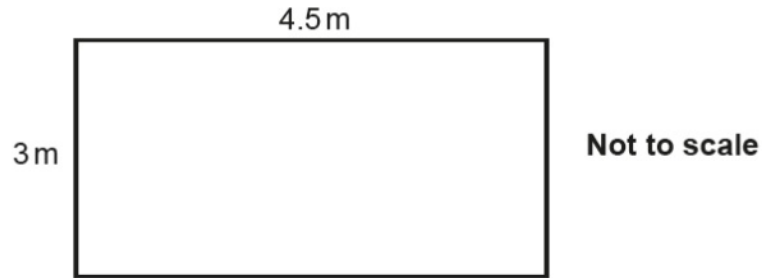
## G17 Area- Rectangles and Parallelograms

OCR

15 Here is the floor plan of a rectangular room.

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G17



Tim buys carpet tiles for this room.

Each tile is a square measuring 50 cm by 50 cm.

The tiles are only sold in packs of ten.

Each pack costs £20.

Tim pays for fitting at a rate of £7.50 per square metre, with any fraction of a square metre rounded up.

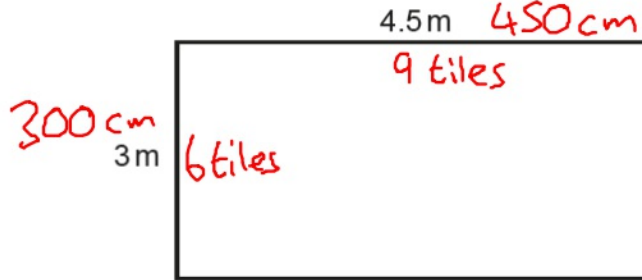
Work out the **total** cost of the tiles and fitting.

£ ..... [6]

G17

Here is the floor plan of a rectangular room.

Tiles



Not to scale



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Total tiles =  $9 \times 6 = 54$  tiles

6 packs @ £20 = £120  
for tiles ✓

Tim buys carpet tiles for this room.

Each tile is a square measuring 50 cm by 50 cm.

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Each pack costs £20.

Tim pays for fitting at a rate of £7.50 per square metre, with any fraction of a square metre rounded up.

Work out the **total** cost of the tiles and fitting.

Square metres =  $4.5 \times 3$   
 $= 45 \times 3 = 13.5 \text{ m}^2$   
 $\approx 14 \text{ m}^2$

£7.50 x 14  
 £7.50 x 10 = £75  
 £7.50 x 4 = £30  
£105  
 £225 ✓

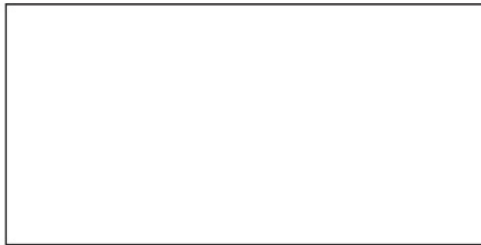
[6]

Edexcel

13 Here is a scale diagram of part of a wall.

Video create

21  
21



Scale: 4 cm represents 1 m

Kamran is going to cover this part of the wall with square tiles.  
Each tile has sides of length 10 cm.

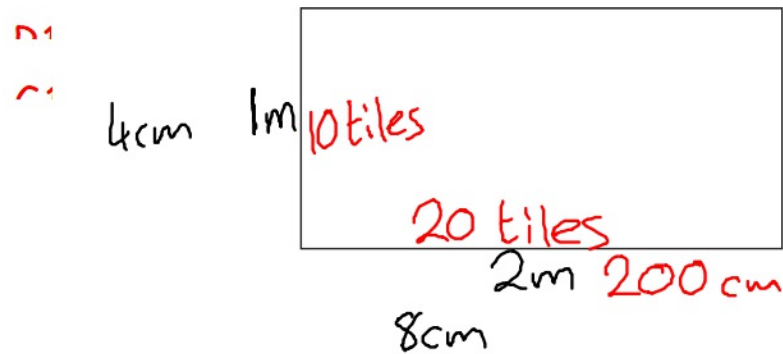
The tiles cost 25p each.  
Kamran spends £60 on tiles.

Show that Kamran has bought enough tiles.

(Total for Question 13 is 4 marks)

13 Here is a scale diagram of part of a wall.

Video create



Scale: 4 cm represents 1 m

$$2\text{m} = 200\text{ cm}$$

$$\frac{200}{10} = 20$$

Kamran is going to cover this part of the wall with square tiles.  
Each tile has sides of length 10 cm.

$$\text{Total tiles ... } 20 \times 10 = 200 \text{ tiles}$$

The tiles cost 25p each.  
Kamran spends £60 on tiles.

$$\underline{200} \times \underline{25p} = 5000p$$

Show that Kamran has bought enough tiles.

$$= \text{£}50$$

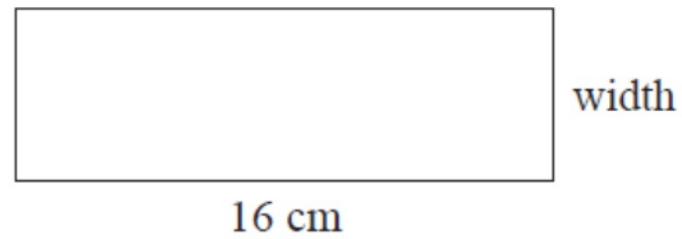
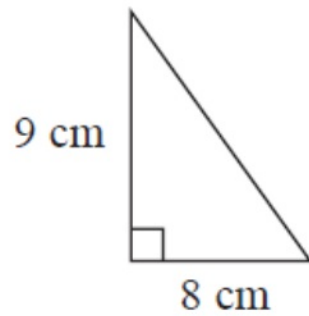
£50 is 200 tiles

so spending £60 is more than enough.

(Total for Question 13 is 4 marks)

**15** Here are a triangle and a rectangle.

Video created by W Neill



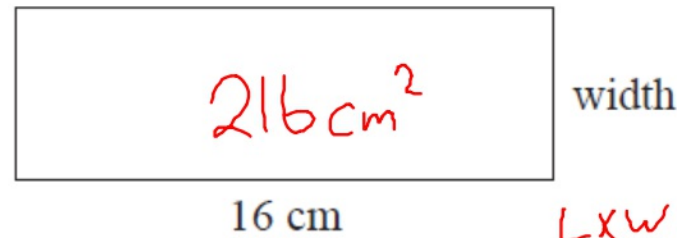
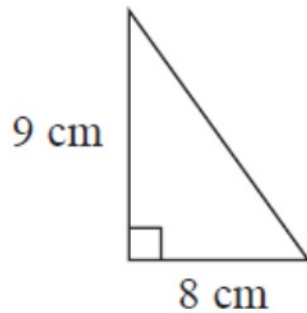
The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.



15 Here are a triangle and a rectangle.

Video created by W Neill



$$L \times W = 216$$

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

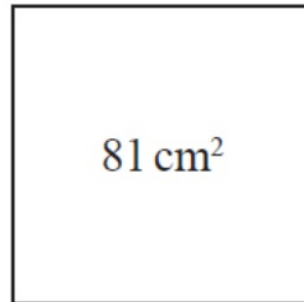
$$36 \times 6$$

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

$$\begin{array}{r} 13.5 \\ 16 \overline{) 216.00} \\ \underline{16} \phantom{00} \\ 56 \phantom{00} \\ \underline{48} \phantom{00} \\ 80 \phantom{00} \\ \underline{80} \phantom{00} \\ 00 \end{array}$$

13.5 cm ✓

13 A square has an area of  $81 \text{ cm}^2$



(a) Find the perimeter of the square.

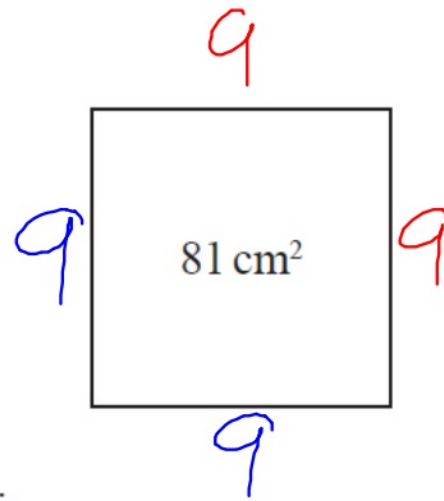
∩  
∩

.....cm

(2)

13 A square has an area of  $81 \text{ cm}^2$

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



$$9 \times 9 = 81$$

(a) Find the perimeter of the square.

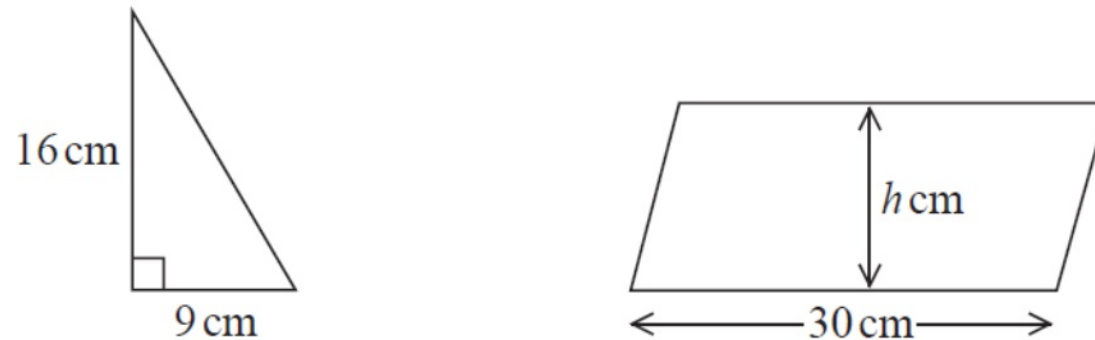
$\therefore$   
 $\therefore$

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

$$\underline{\hspace{10em}} \text{ cm}$$

(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  $h$ .

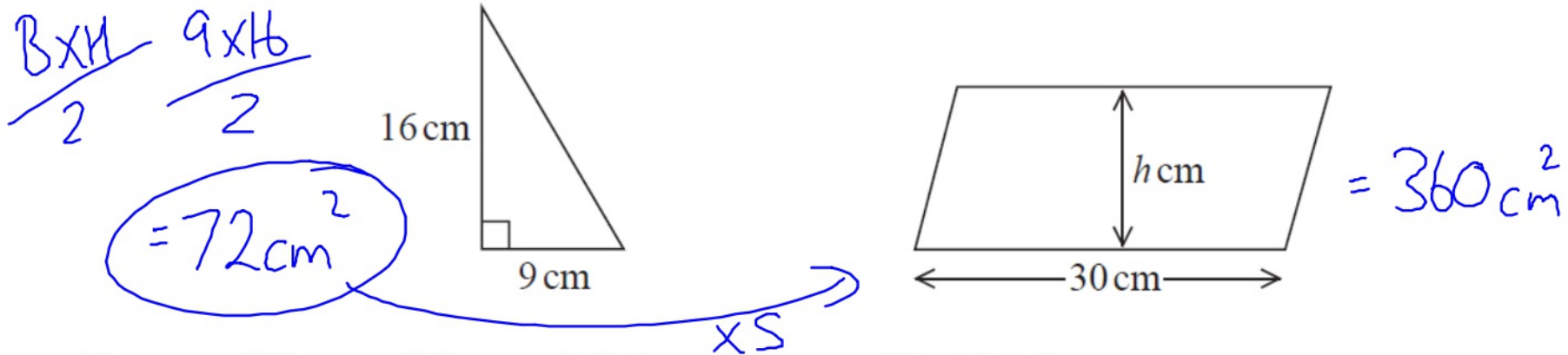
G17

G18

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

(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  $h$ .

∴  
∴

$$h = \underline{12} \checkmark \text{ cm}$$

(3)

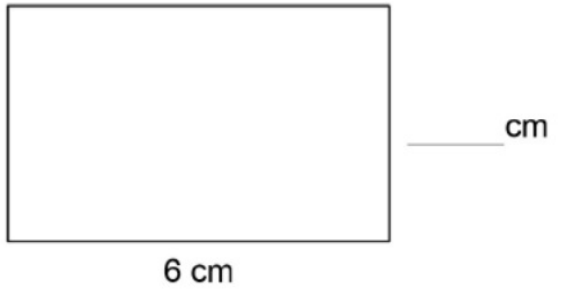
AQA

10 Each shape below has an area of  $24 \text{ cm}^2$

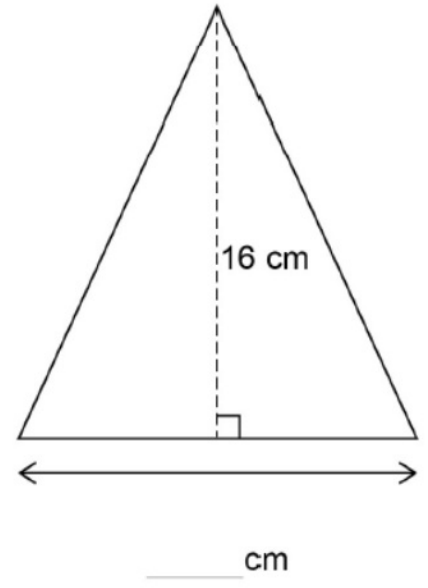
Complete the missing lengths.

[3 marks]

Rectangle



Triangle



10

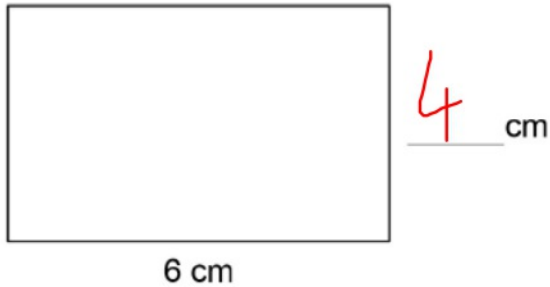
Each shape below has an area of  $24 \text{ cm}^2$

G17  
G18

Complete the missing lengths.

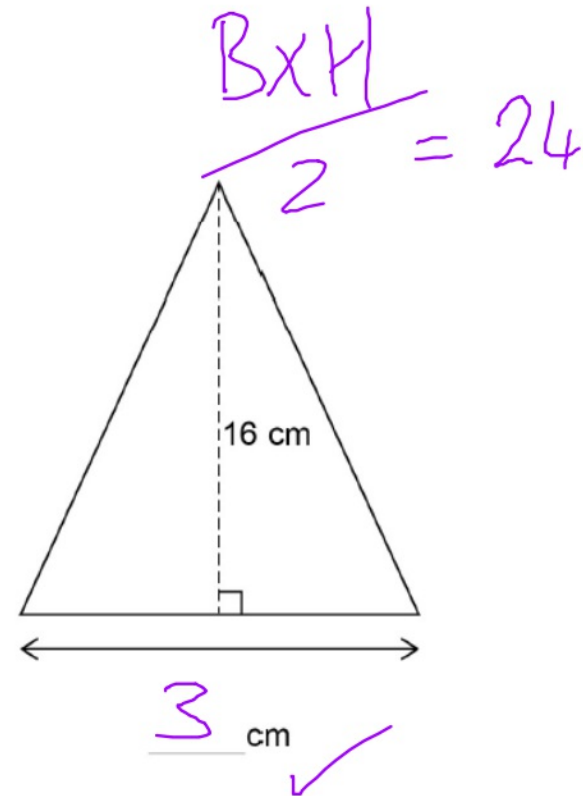
[3 marks]

Rectangle



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

Triangle



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



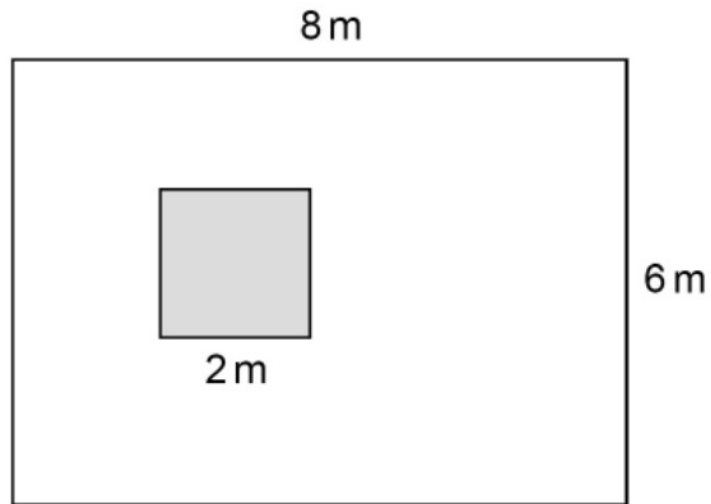
7

A rectangular carpet measures 8 m by 6 m

Part of the carpet is covered by a square rug of length 2 m

R4a

G17



Not drawn  
accurately

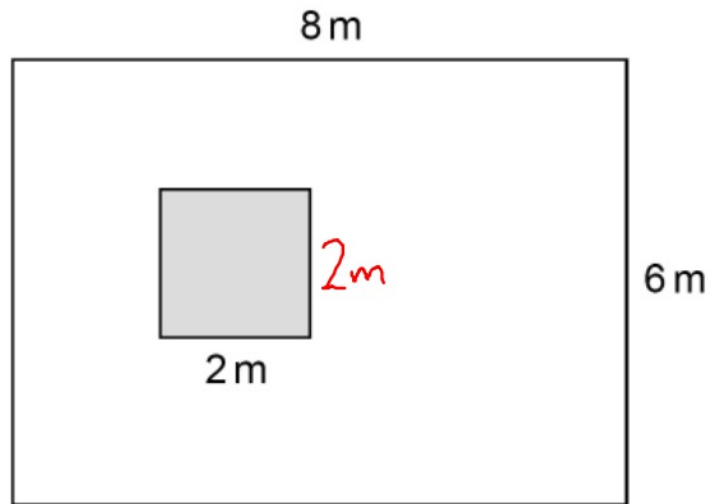
Show that  $\frac{1}{12}$  of the carpet is covered by the rug.

**[2 marks]**

7

A rectangular carpet measures 8 m by 6 m

Part of the carpet is covered by a square rug of length 2 m



Not drawn accurately

$$\begin{aligned} \text{Carpet} &= 8\text{m} \times 6\text{m} \\ &= 48\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Rug} &= 2\text{m} \times 2\text{m} \\ &= 4\text{m}^2 \end{aligned}$$

These are equal

Show that  $\frac{1}{12}$  of the carpet is covered by the rug.

[2 marks]

$$\frac{1}{12} \text{ of carpet} = \frac{1}{12} \text{ of } 48\text{m}^2 = \frac{48}{12} = 4\text{m}^2$$

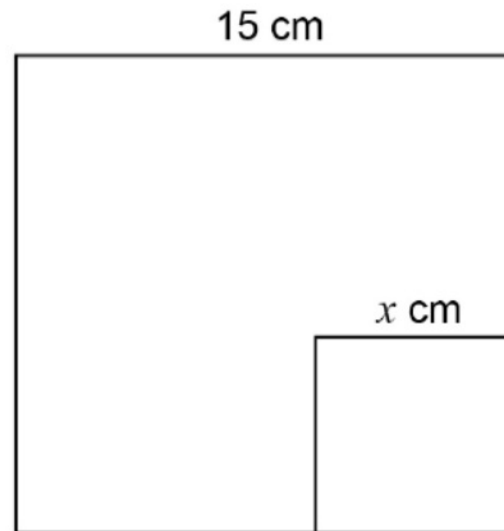
13

A small square has length  $x$  cm

A large square has length 15 cm

D.  
C.

Not drawn  
accurately



The area of the small square is  $\frac{1}{9}$  of the area of the large square.

Work out the value of  $x$ . **[3 marks]**

Answer \_\_\_\_\_

13

A small square has length  $x$  cm

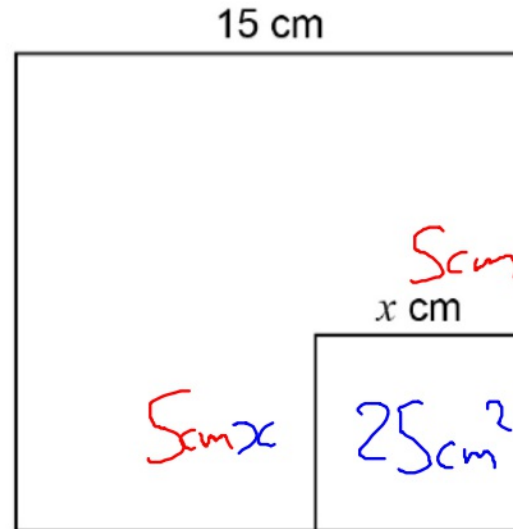
A large square has length 15 cm

R4a

G17

$$\begin{aligned} \text{large} &= 15 \times 15 \\ &= 225 \text{ cm}^2 \end{aligned}$$

15

Not drawn  
accurately

$$x \times x = 25$$

$$\sqrt{25}$$

$$= 5$$

The area of the small square is  $\frac{1}{9}$  of the area of the large square.

Work out the value of  $x$ .

[3 marks]

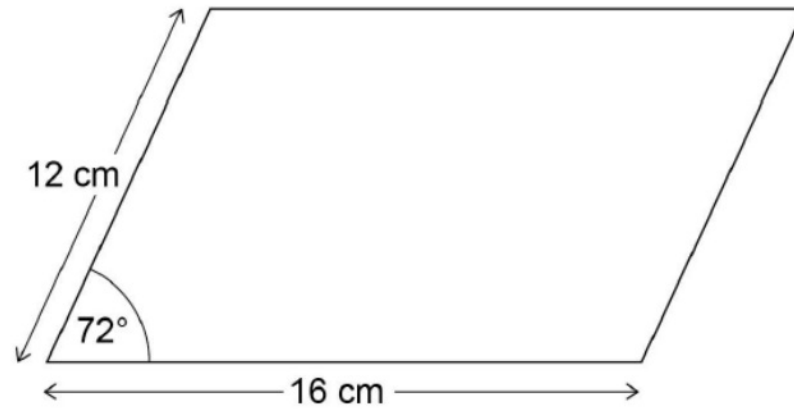
$$\begin{aligned} & \frac{1}{9} \text{ of } 225 \\ & = \end{aligned}$$

Answer 5 cm

Video created by W Neill

17 Work out the area of the parallelogram.

G17  
G46



Not drawn  
accurately

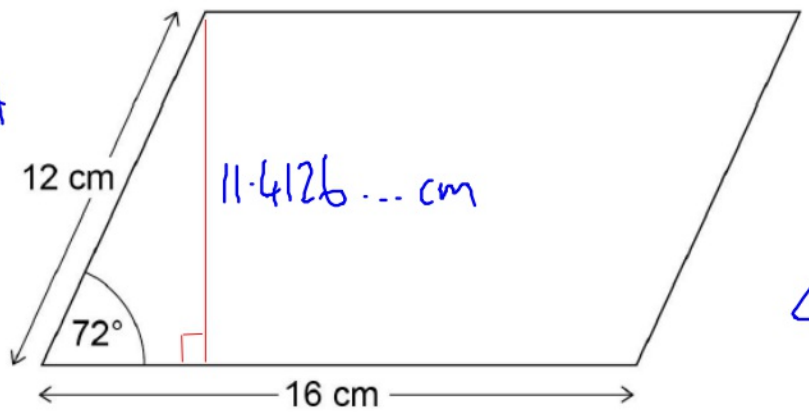
[3 marks]

Answer \_\_\_\_\_  $\text{cm}^2$

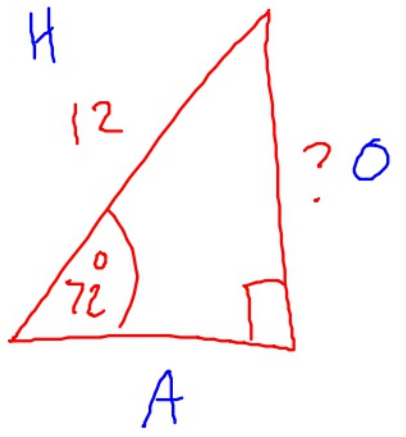
17 Work out the area of the parallelogram. *Base x Height*

∴  
∴

$\sin^{-1} \frac{CH}{TA}$



Not drawn accurately



[3 marks]

$$\text{Area} = 11.4126 \times 16$$

$$=$$

Answer 182.60 ✓ cm<sup>2</sup>