

# 5.4

# Pythagoras

# and

# Trigonometry

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22

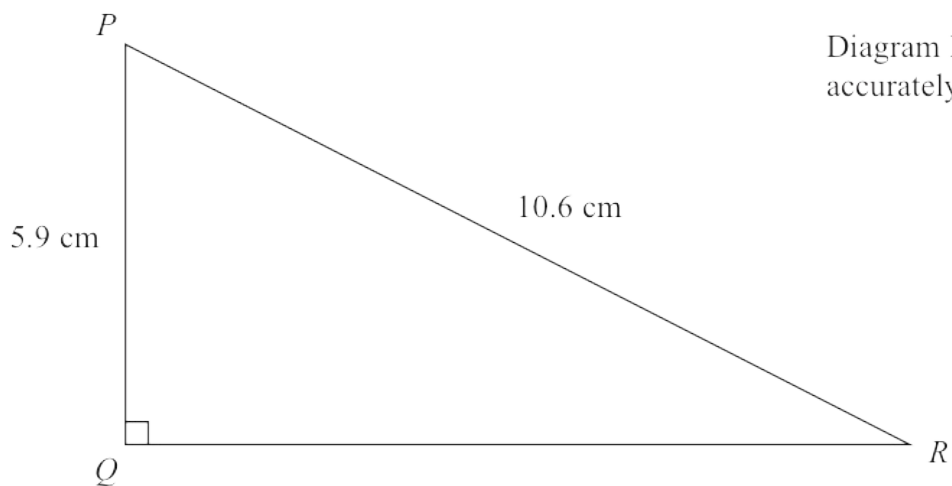


Diagram **NOT** accurately drawn

- (a) Work out the length of  $QR$ .  
Give your answer correct to 3 significant figures.

.....cm  
(3)

- (b) Work out the size of angle  $PRQ$ .  
Give your answer correct to 1 decimal place.

.....°  
(3)

The length of a line is  $12.4 \text{ cm}$  correct to one decimal place.

- (c) Write down the upper bound for the length of the line.

.....cm  
(1)

25 Here is a right-angled triangle  $ABC$ .

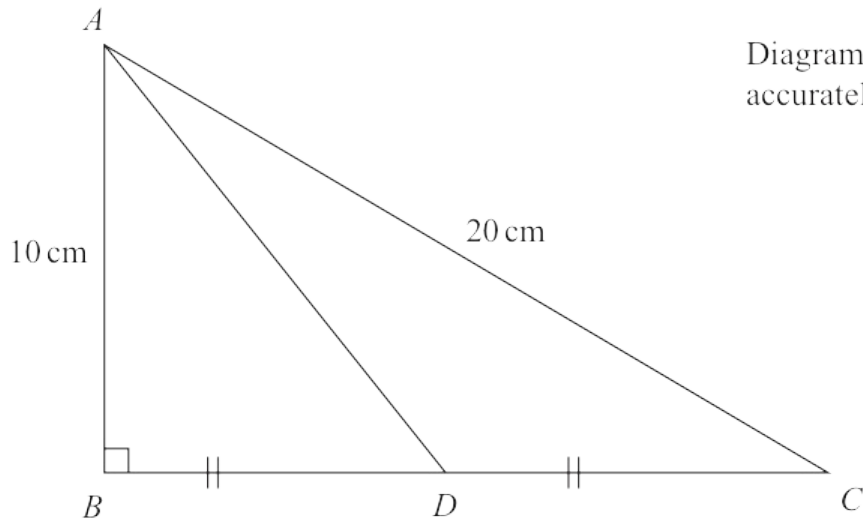


Diagram **NOT** accurately drawn

Angle  $ABC = 90^\circ$   
 $AC = 20$  cm  
 $AB = 10$  cm

$D$  is the midpoint of  $BC$ .

Work out the length of  $AD$ .  
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 25 is 4 marks)

21

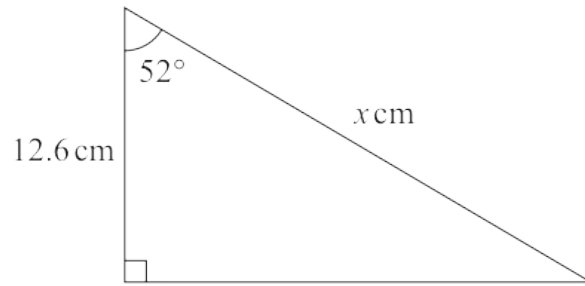


Diagram **NOT** accurately drawn

Work out the value of  $x$ .  
Give your answer correct to 3 significant figures.

$x =$ .....

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(Total for Question 21 is 3 marks)

25  $ABCD$  is a trapezium.

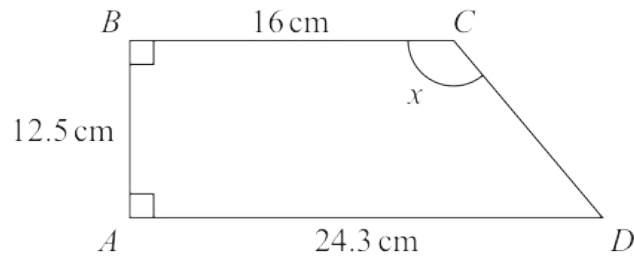


Diagram **NOT** accurately drawn

Work out the size of angle  $x$ .  
Give your answer correct to 1 decimal place.

.....  
(Total for Question 25 is 4 marks)

19

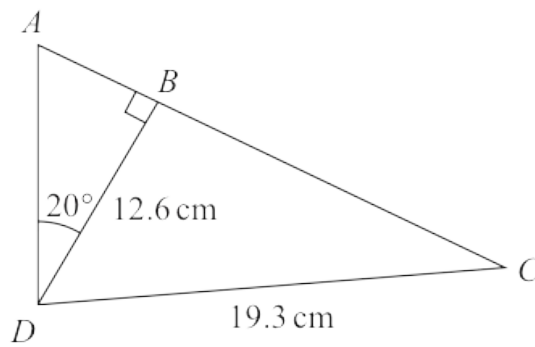


Diagram **NOT**  
accurately drawn

$ABC$  is a straight line.

Work out the length of  $AC$ .

Give your answer correct to 1 decimal place.

18

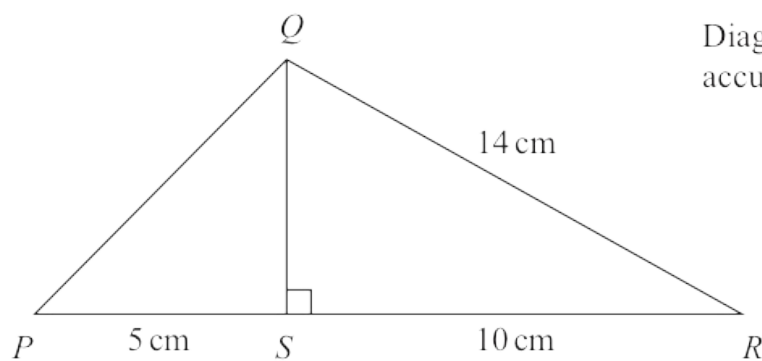


Diagram **NOT**  
accurately drawn

In triangle  $PQR$ ,

$S$  is the point on  $PR$  such that angle  $RSQ = 90^\circ$

$RQ = 14$  cm

$RS = 10$  cm

$SP = 5$  cm

Work out the length of  $PQ$ .

22 The diagram shows a trapezium.

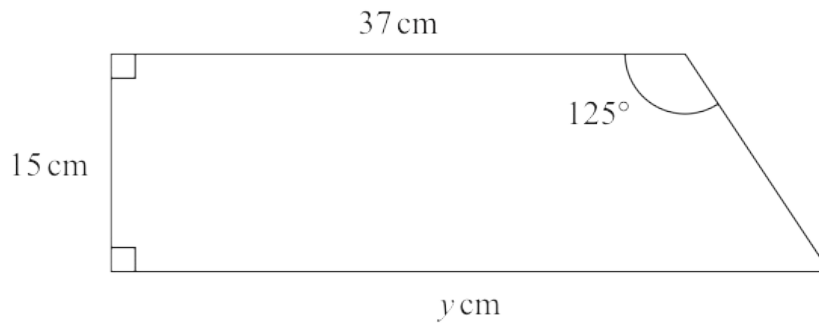


Diagram **NOT** accurately drawn

Work out the value of  $y$ .

Give your answer correct to 1 decimal place.

$y =$

(Total for Question 22 is 4 marks)

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20 The diagram shows isosceles triangle  $ABC$ .

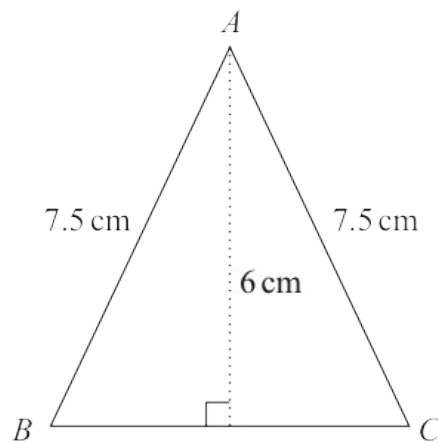


Diagram **NOT** accurately drawn

$AB = AC = 7.5\text{ cm}$ .

The height of the triangle is  $6\text{ cm}$ .

Calculate the area of the triangle.

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

(Total for Question 20 is 4 marks)

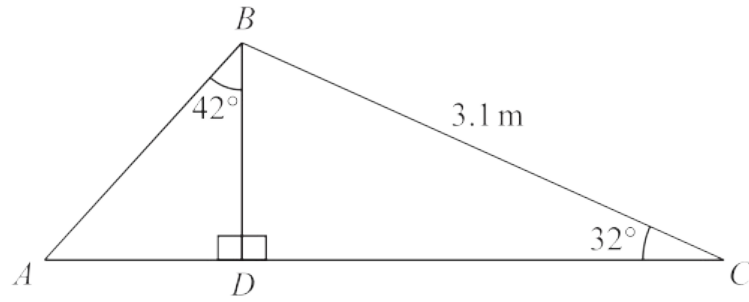


Diagram **NOT** accurately drawn

Calculate the length of  $AB$ .  
 Show your working clearly.  
 Give your answer correct to 3 significant figures.

..... m

(Total for Question 27 is 5 marks)

22 Here is a right-angled triangle.

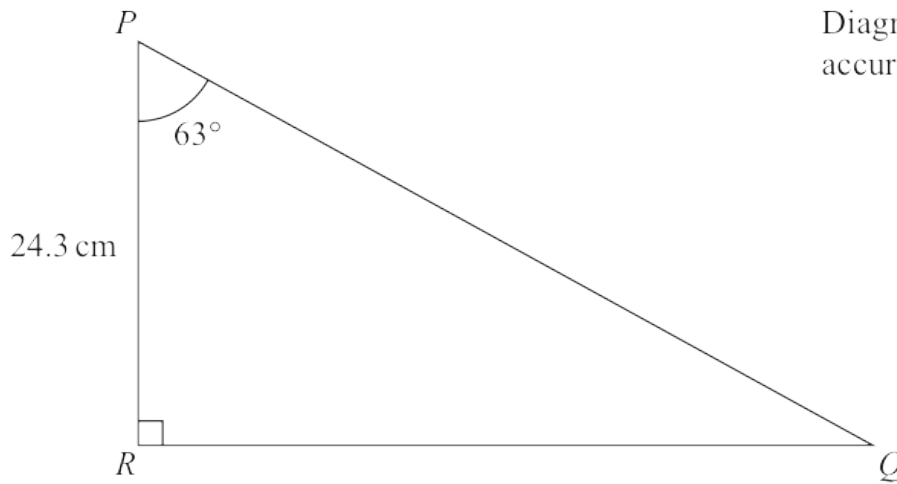


Diagram **NOT** accurately drawn

Calculate the length of  $PQ$ .  
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 22 is 3 marks)

19 The diagram shows a rectangle and a diagonal of the rectangle.

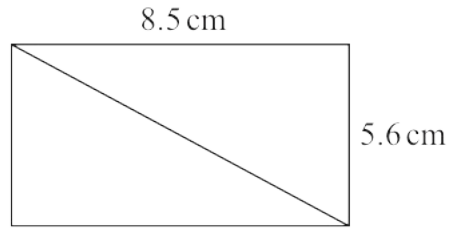


Diagram **NOT**  
accurately drawn

Work out the length of the diagonal of the rectangle.  
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 19 is 3 marks)

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22 The diagram shows a right-angled triangle.

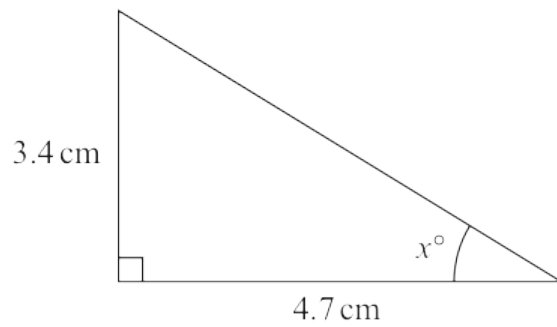


Diagram **NOT** accurately drawn

Calculate the value of  $x$ .

Give your answer correct to one decimal place.

$x = \dots\dots\dots$

(Total for Question 22 is 3 marks)

23 The diagram shows an isosceles triangle.

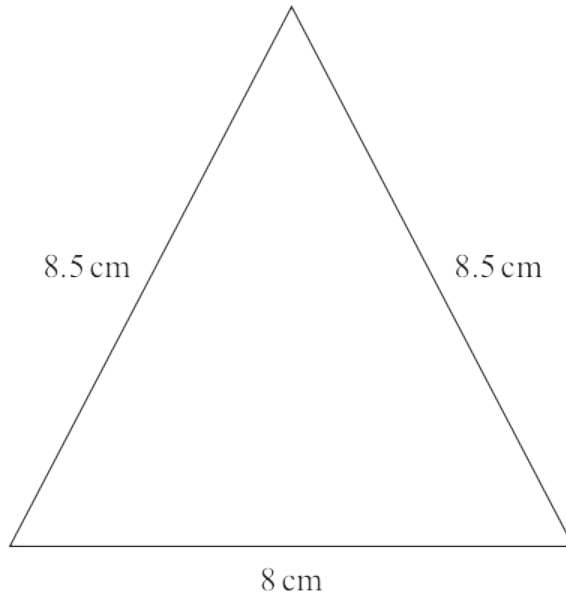


Diagram **NOT** accurately drawn

Work out the area of the triangle.

.....cm<sup>2</sup>

(Total for Question 23 is 4 marks)

26 Here is isosceles triangle  $ABC$ .

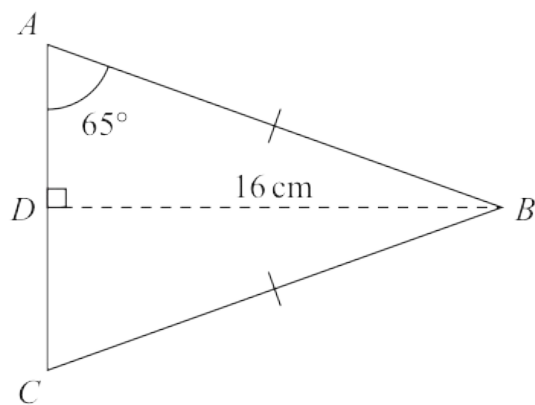


Diagram **NOT** accurately drawn

$D$  is the midpoint of  $AC$  and  $DB = 16$  cm.

Angle  $DAB = 65^\circ$

Work out the perimeter of triangle  $ABC$ .

Give your answer correct to one decimal place.

..... cm

(Total for Question 26 is 4 marks)

21 Here is a right-angled triangle.

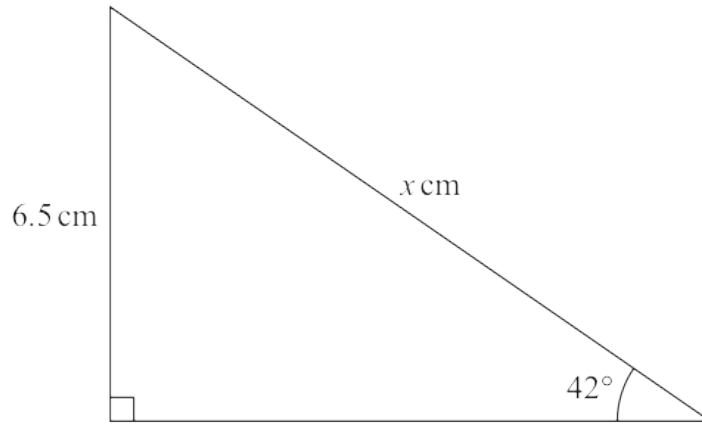


Diagram **NOT** accurately drawn

Work out the value of  $x$ .  
Give your answer correct to one decimal place.

$x =$  .....

(Total for Question 21 is 3 marks)

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14 Here is a right-angled triangle.

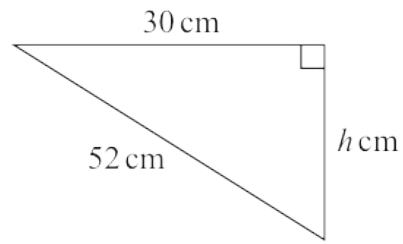


Diagram **NOT**  
accurately drawn

Calculate the value of  $h$ .

Give your answer correct to 3 significant figures.

$h = \dots\dots\dots$

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(Total for Question 14 is 3 marks)

18 The diagram shows triangle  $ABC$

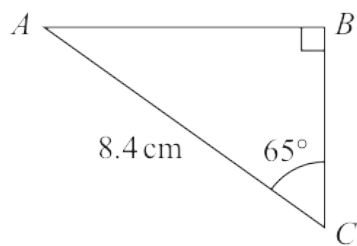


Diagram **NOT** accurately drawn

Work out the length of the side  $AB$   
Give your answer correct to 3 significant figures.

..... cm

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(Total for Question 18 is 3 marks)

24 The diagram shows isosceles triangle  $ABC$

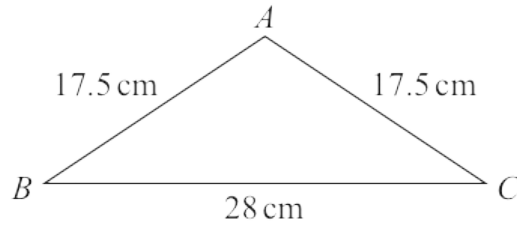


Diagram **NOT** accurately drawn

$$AB = AC = 17.5 \text{ cm}$$

$$BC = 28 \text{ cm}$$

Calculate the area of triangle  $ABC$

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

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(Total for Question 24 is 4 marks)

22 The diagram shows triangle  $PQR$ .

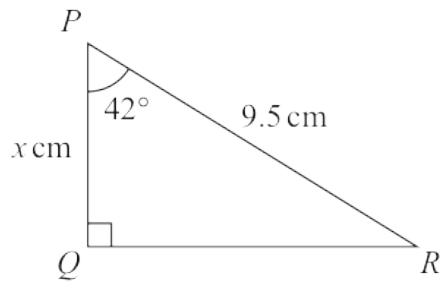


Diagram **NOT** accurately drawn

Work out the value of  $x$   
Give your answer correct to one decimal place.

$x = \dots\dots\dots$

(Total for Question 22 is 3 marks)

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27 The diagram shows a quadrilateral  $ABCD$

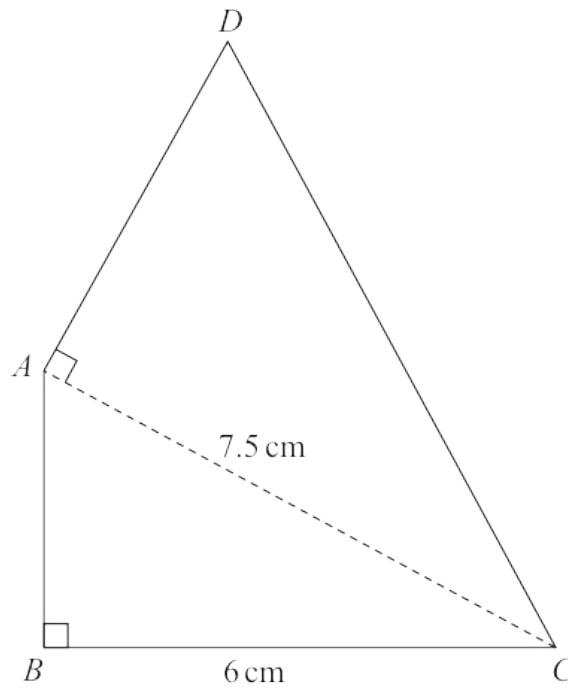


Diagram **NOT** accurately drawn

In the diagram,  $ABC$  and  $DAC$  are right-angled triangles.

$$BC = 6\text{ cm} \quad AC = 7.5\text{ cm}$$

The area of quadrilateral  $ABCD$  is  $31.5\text{ cm}^2$

Work out the length of  $AD$

Question 27 continued.

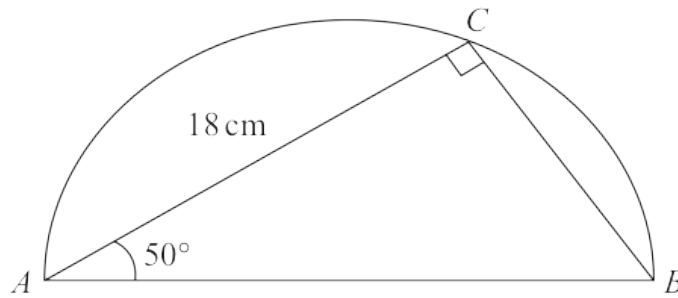
..... cm

(Total for Question 27 is 6 marks)

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23 The diagram shows a triangle  $ABC$  inside a semicircle.

Diagram **NOT**  
accurately drawn



$A$ ,  $B$  and  $C$  are points on the semicircle.

$AB$  is the diameter of the semicircle.

Angle  $ACB = 90^\circ$

Angle  $BAC = 50^\circ$

$AC = 18\text{ cm}$

Work out the perimeter of the semicircle.

Give your answer correct to 2 significant figures.

..... cm

**(Total for Question 23 is 5 marks)**

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25 The diagram shows an isosceles triangle, with base length 24 cm.

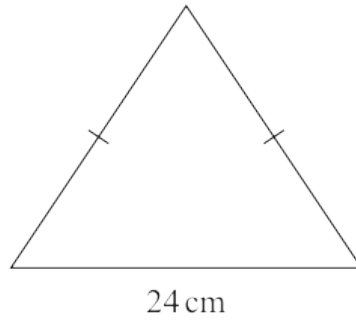


Diagram **NOT** accurately drawn

The perimeter of the triangle is 54 cm.

Work out the area of the triangle.

..... cm<sup>2</sup>

(Total for Question 25 is 5 marks)

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24 The diagram shows an isosceles triangle  $ABC$

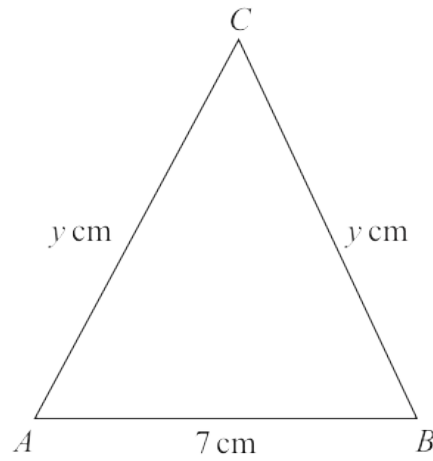


Diagram **NOT** accurately drawn

$$AB = 7 \text{ cm} \quad AC = BC = y \text{ cm}$$

The area of the triangle is  $42 \text{ cm}^2$

Work out the value of  $y$

$$y = \dots\dots\dots$$

(Total for Question 24 is 4 marks)

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- 20 The diagram shows a shaded shape  $AEBCD$  made by removing triangle  $AEB$  from rectangle  $ABCD$

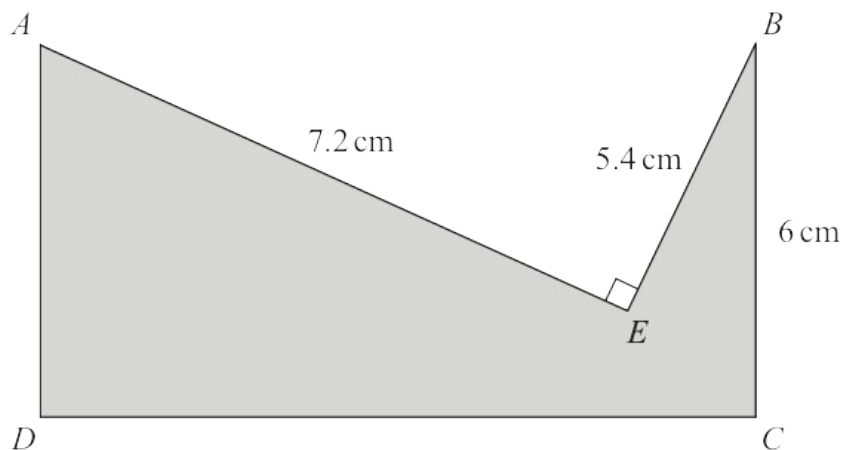


Diagram **NOT** accurately drawn

$AE = 7.2 \text{ cm}$      $BE = 5.4 \text{ cm}$      $BC = 6 \text{ cm}$     angle  $AEB = 90^\circ$

Work out the perimeter of the shaded shape.

..... cm

(Total for Question 20 is 4 marks)

28 The diagram shows right-angled triangle  $ABD$

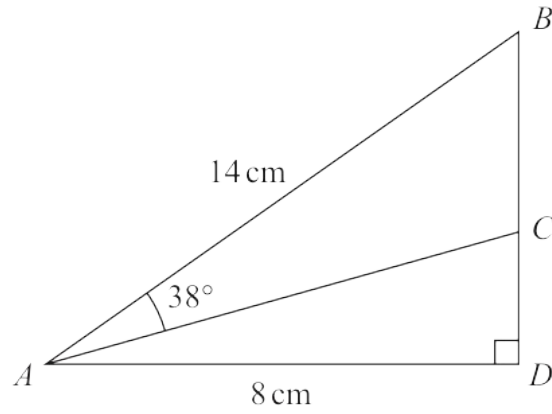


Diagram **NOT** accurately drawn

$AB = 14\text{ cm}$        $AD = 8\text{ cm}$

$C$  is the point on  $BD$  such that angle  $BAC = 38^\circ$

Work out the length of  $CD$

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 28 is 4 marks)

24 The diagram shows a rectangular sheet of metal  $ABCD$

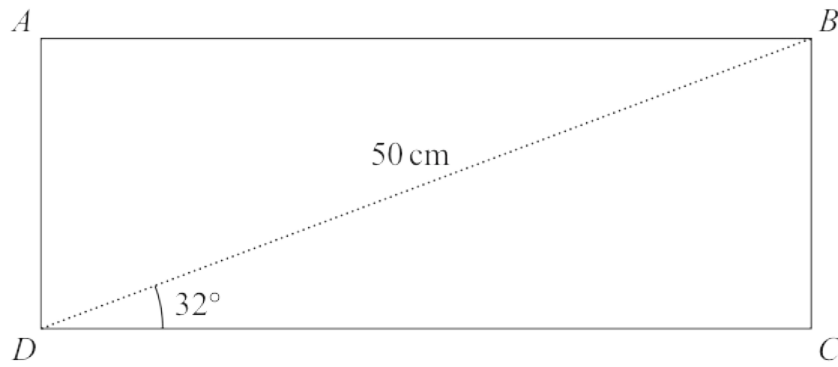


Diagram **NOT**  
accurately drawn

$BD = 50$  cm and angle  $BDC = 32^\circ$

Nasser joins side  $AD$  to side  $BC$  to form a cylinder.

$BC$  is the height of the cylinder.

$DC$  is the circumference of the cross section of the cylinder.

Work out the volume, in  $\text{cm}^3$ , of the cylinder.

Give your answer correct to 3 significant figures.

..... cm<sup>3</sup>

**(Total for Question 24 is 6 marks)**

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24 Here is triangle  $ABC$

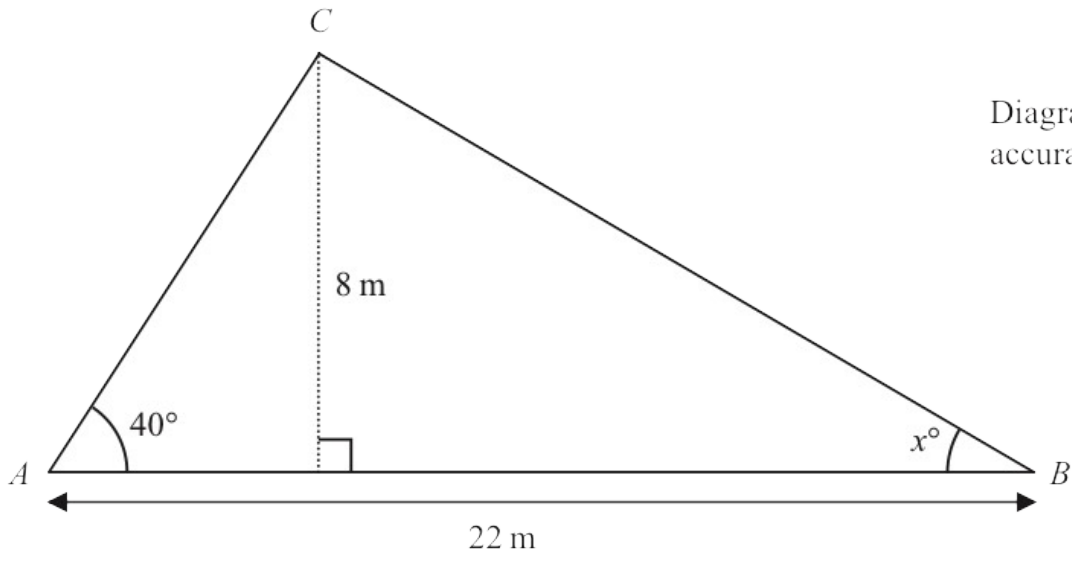


Diagram **NOT** accurately drawn

Work out the value of  $x$   
 Give your answer correct to one decimal place.  
 Show your working clearly.

$x = \dots\dots\dots$

(Total for Question 24 is 5 marks)

18 The diagram shows triangle  $ABC$  and triangle  $ECD$

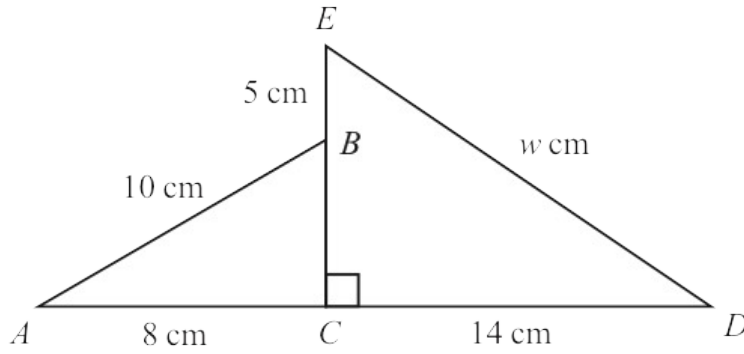


Diagram **NOT** accurately drawn

$ACD$  and  $EBC$  are straight lines.

$$AB = 10 \text{ cm} \quad AC = 8 \text{ cm} \quad EB = 5 \text{ cm} \quad CD = 14 \text{ cm} \quad ED = w \text{ cm}$$

Work out the value of  $w$

Give your answer correct to one decimal place.

$$w = \dots\dots\dots$$

(Total for Question 18 is 4 marks)