

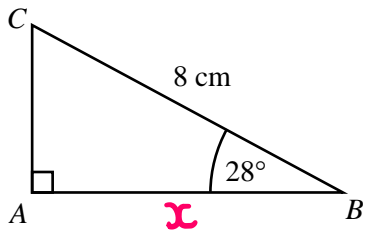


Trigonometry SOHCAHTOA



← REVISE THIS TOPIC

1 ABC is a right-angled triangle.



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

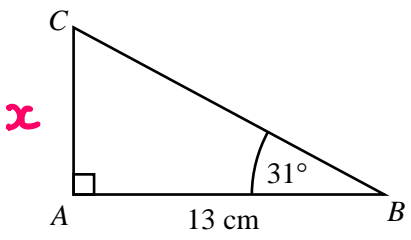
$$\cos(28) = \frac{x}{8}$$

$$8 \times \cos(28) = x$$

$$x = 7.063580743 \dots 7.06 \text{ cm}$$

(Total for Question 1 is 2 marks)

2 ABC is a right-angled triangle.



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

$$\tan(31) = \frac{x}{13}$$

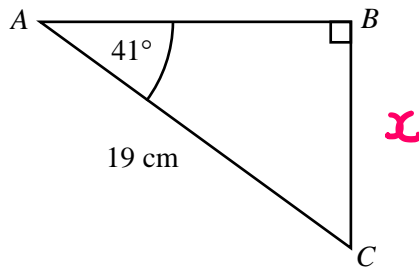
$$13 \times \tan(31) = x$$

$$x = 7.811188047 \dots 7.81 \text{ cm}$$

(Total for Question 2 is 2 marks)



3 ABC is a right-angled triangle.



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

$$\sin(41) = \frac{x}{19}$$

$$19 \times \sin(41) = x$$

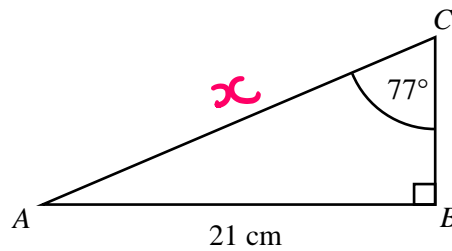
$$x = 12.46512155$$

12.5

..... cm

(Total for Question 3 is 2 marks)

4 ABC is a right-angled triangle.



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

$$\sin(77) = \frac{21}{x}$$

$$x = \frac{21}{\sin(77)}$$

$$x = 21.55238626$$

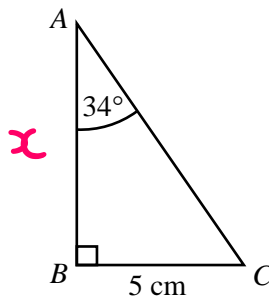
21.6

..... cm

(Total for Question 4 is 2 marks)



5 ABC is a right-angled triangle.



Calculate the length of AB .

Give your answer correct to 3 significant figures.

$$\tan(34) = \frac{5}{x}$$

$$x = \frac{5}{\tan(34)}$$

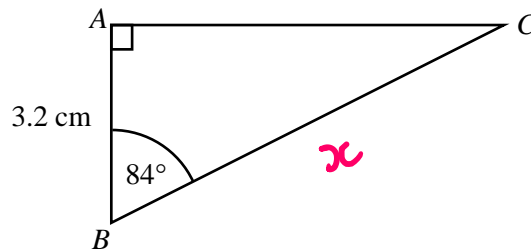
$$x = 7.412804843$$

7.41

..... cm

(Total for Question 5 is 2 marks)

6 ABC is a right-angled triangle.



Calculate the length of BC .

Give your answer correct to 3 significant figures.

$$\cos(84) = \frac{x}{3.2}$$

$$x = \frac{3.2}{\cos(84)}$$

$$x = 30.61367115$$

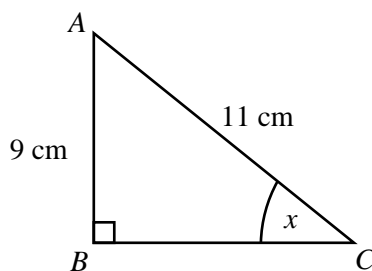
30.6

..... cm

(Total for Question 6 is 2 marks)



7 ABC is a right-angled triangle.



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

$$\sin(x) = \frac{9}{11}$$

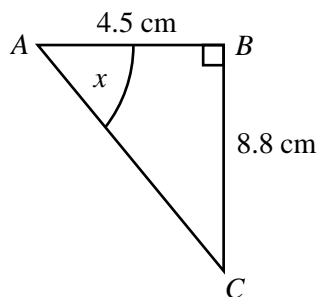
$$x = \sin^{-1}\left(\frac{9}{11}\right)$$

$$x = 54.90319877$$

$$54.9$$

(Total for Question 7 is 2 marks)

8 ABC is a right-angled triangle.



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

$$\tan(x) = \frac{8.8}{4.5}$$

$$x = \tan^{-1}\left(\frac{8.8}{4.5}\right)$$

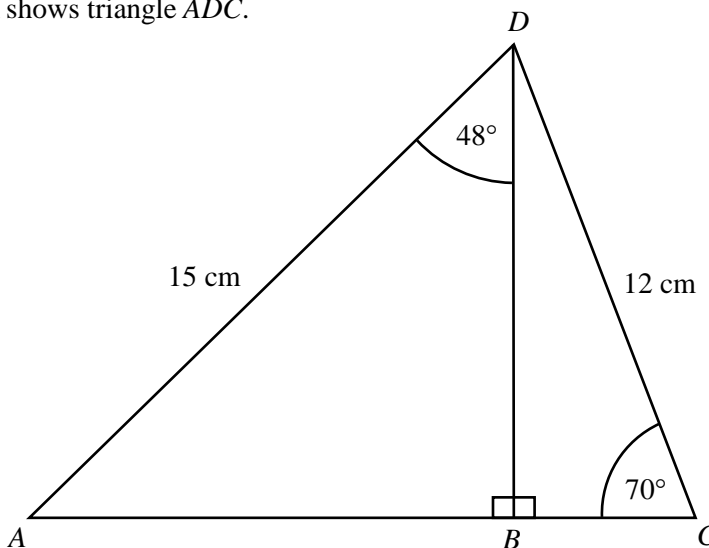
$$x = 62.91644914$$

$$62.9$$

(Total for Question 8 is 2 marks)



9 The diagram shows triangle ADC .



ABC is a straight line.

Work out the length of AC .

Give your answer correct to 3 significant figures.

$$\sin(48) = \frac{AB}{15}$$

$$AB = 15 \times \sin(48)$$

$$AB = 11.14717238$$

$$\cos(70) = \frac{BC}{12}$$

$$BC = 12 \times \cos(70)$$

$$BC = 4.10424172$$

$$AC = AB + BC$$

$$= 11.14... + 4.104...$$

$$= 15.2514141$$

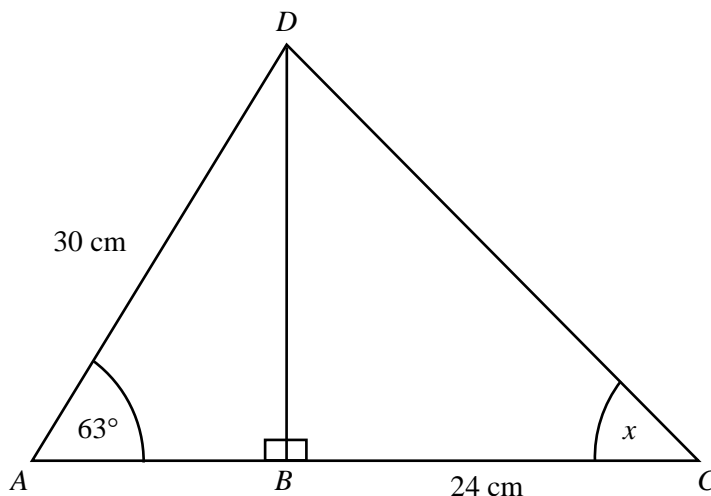
15.3

..... cm

(Total for Question 9 is 4 marks)



10 The diagram shows triangle ADC .



ABC is a straight line.

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

$$\sin(63) = \frac{BD}{30}$$

$$BD = 30 \times \sin(63)$$

$$BD = 26.73019573$$

$$\tan(x) = \frac{26.7\dots}{24}$$

$$x = \tan^{-1}\left(\frac{26.7\dots}{24}\right)$$

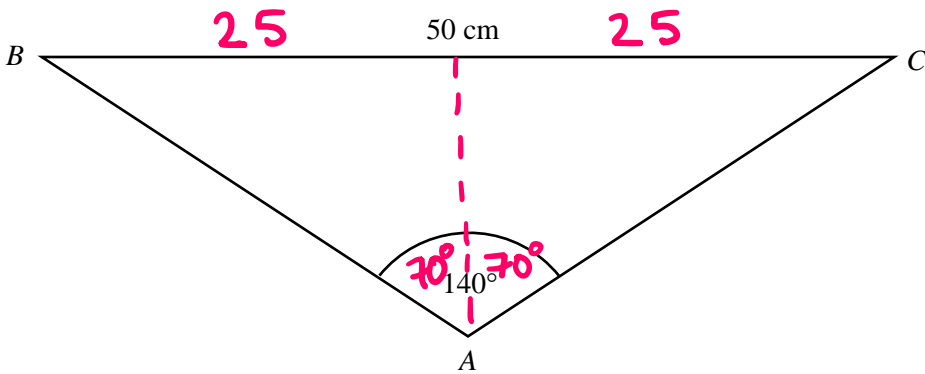
$$x = 48.0805702$$

48.1

(Total for Question 10 is 4 marks)



11 The diagram shows triangle ABC .



$AB = AC$

Work out the perimeter of triangle ABC .
Give your answer correct to 1 decimal place.

$$\sin(70) = \frac{25}{AB}$$

$$AB = \frac{25}{\sin(70)}$$

$$AB = 26.60444431$$

$$AC = 26.60444431$$

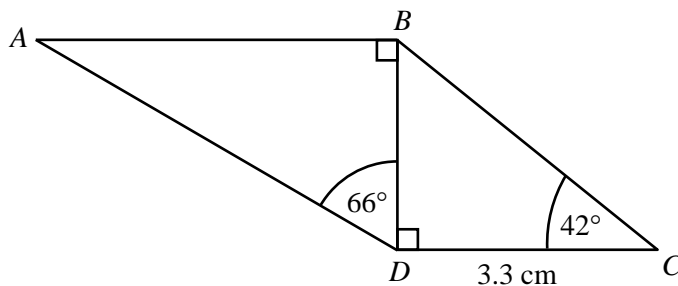
$$\begin{aligned}
 P &= 26.6 \dots + 26.6 \dots + 50 \\
 &= 103.2088886
 \end{aligned}$$

..... 103.2 cm

(Total for Question 11 is 4 marks)



12 The diagram shows trapezium $ABCD$.



Work out the length of AD .
Give your answer correct to 3 significant figures.

$$\tan(42) = \frac{BD}{3.3}$$

$$BD = 3.3 \times \tan(42)$$

$$BD = 2.971333346$$

$$\cos(66) = \frac{2.97...}{AD}$$

$$AD = \frac{2.97...}{\cos(66)}$$

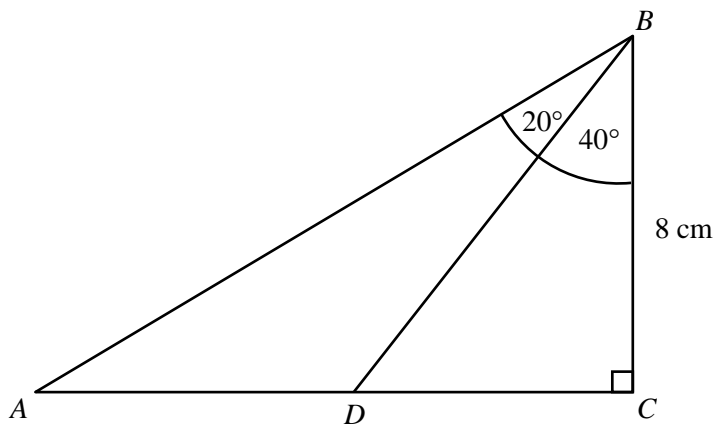
$$AD = 7.305300363$$

..... 7.31 cm

(Total for Question 12 is 4 marks)



13 The diagram shows triangle ABC .



ADC is a straight line.

Work out the length of AD .

Give your answer correct to 3 significant figures.

$$\tan(40) = \frac{DC}{8}$$

$$DC = 8 \times \tan(40)$$

$$DC = 6.712797049$$

$$\tan(60) = \frac{AC}{8}$$

$$AC = 8 \times \tan(60)$$

$$AC = 13.85640646$$

$$AD = 13.85... - 6.71...$$

$$AD = 7.143609411$$

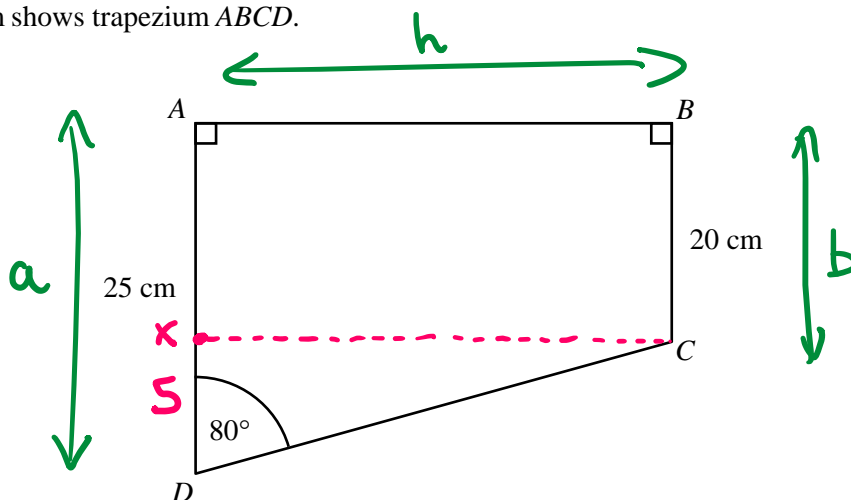
7.14

..... cm

(Total for Question 13 is 4 marks)



14 The diagram shows trapezium $ABCD$.



Work out the area of trapezium $ABCD$.
Give your answer correct to 3 significant figures.

$$\tan(80) = \frac{XC}{5}$$

$$XC = 5 \times \tan(80)$$

$$XC = 28.3564091$$

$$\begin{aligned}
 \text{Area} &= \frac{1}{2}(a+b)h \\
 &= \frac{1}{2}(25 + 20) \times 28.356\dots \\
 &= 638.0192047
 \end{aligned}$$

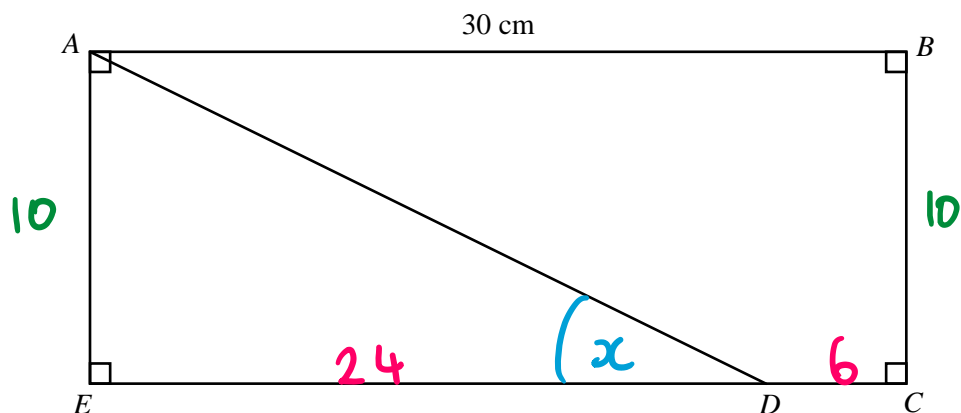
638

..... cm²

(Total for Question 14 is 4 marks)



15 The diagram shows rectangle $ABCE$.



The perimeter of rectangle $ABCE$ is 80 cm

$ED : DC = 4 : 1$

Work out the size of angle ADE .

Give your answer correct to 1 decimal place.

$$30 \div 5 = 6$$

$$4 \times 6 = 24$$

$$1 \times 6 = 6$$

$$80 - 30 - 30 = 20$$

$$20 \div 2 = 10$$

$$\tan(x) = \frac{10}{24}$$

$$x = \tan^{-1}\left(\frac{10}{24}\right)$$

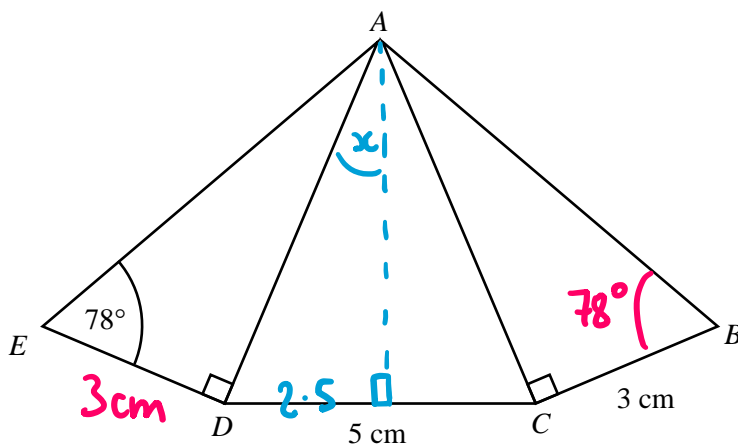
$$x = 22.61986495$$

22.6

(Total for Question 15 is 4 marks)



16 $ABCDE$ is a pentagon formed from three triangles.



Triangles ABC and ADE are congruent.

Work out the size of angle DAC .

Give your answer correct to 1 decimal place.

$$\tan(78) = \frac{AD}{3}$$

$$AD = 3 \times \tan(78)$$

$$= 14.11389033$$

$$\sin(x) = \frac{2.5}{14.11...}$$

$$x = \sin^{-1}\left(\frac{2.5}{14.11...}\right)$$

$$x = 10.20266209$$

$$\text{Angle } DAC = 2x$$

$$= 2 \times 10.20...$$

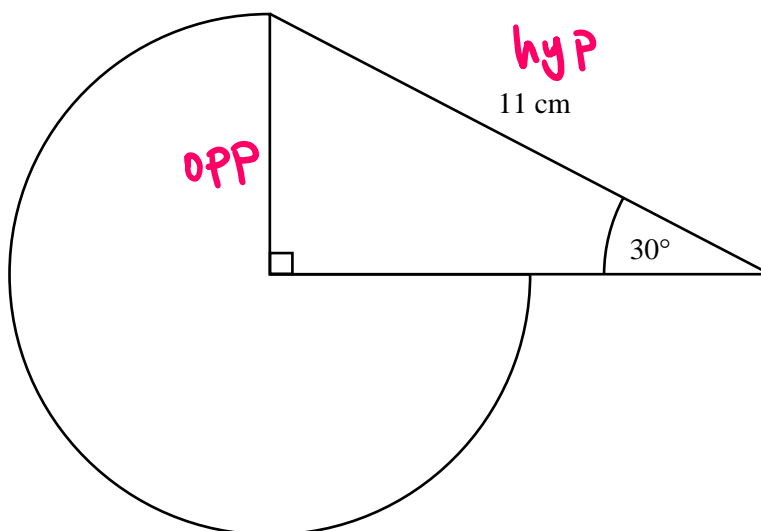
$$= 20.4053...$$

20.4

(Total for Question 16 is 4 marks)



17 A logo is made from a sector and a triangle.



Work out the area of the sector.
Give your answer correct to 3 significant figures.

$$\sin(30) = \frac{\text{opp}}{11}$$

$$\begin{aligned} \text{opp} &= 11 \times \sin(30) \\ &= 5.5 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{3}{4} \times \pi \times 5.5^2 \\ &= 71.27488333 \end{aligned}$$

71.3 cm²

(Total for Question 17 is 4 marks)

