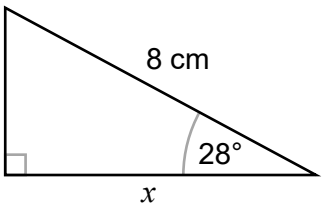
Trigonometry SOHCAHTOA

SCAN ME

REVISE THIS TOPIC

1 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

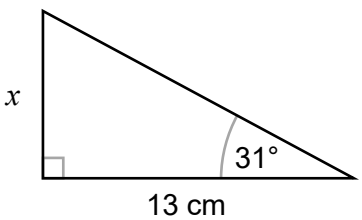
$\cos(28) = \frac{x}{8}$

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

$x = 7.063580743$

Answer 7.06 cm

2 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

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

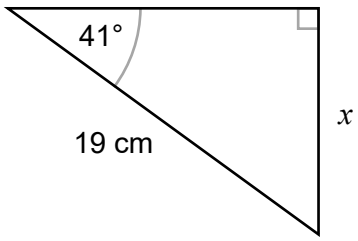
$13 \times \tan(31) = x$

$x = 7.811188047$

Answer 7.81 cm

6

3 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

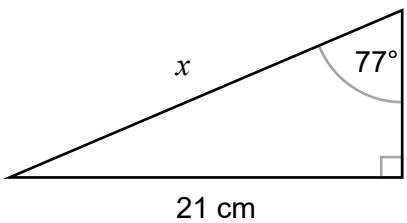
$\sin(41) = \frac{x}{19}$

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

$x = 12.465121555$

Answer 12.5 cm

4 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

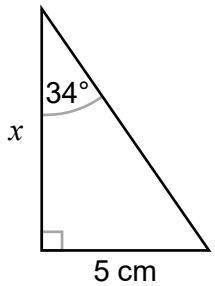
$\sin(77) = \frac{21}{x}$

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

$x = 21.552386260$

Answer 21.6 cm

5 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

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

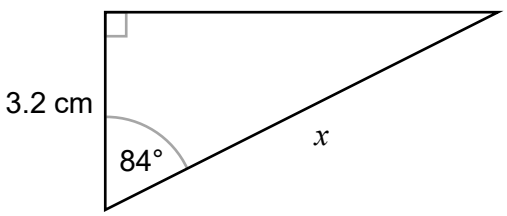
$x = \frac{5}{\tan(34)}$

$x = 7.412804843$

7.41

Answer _____ cm

6 Use trigonometry to work out the value of x.



Not drawn accurately

[3 marks]

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

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

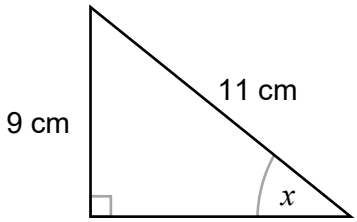
$x = 30.61367115$

30.6

Answer _____ cm

12

7 Use trigonometry to work out the size of angle x.



Not drawn accurately

[3 marks]

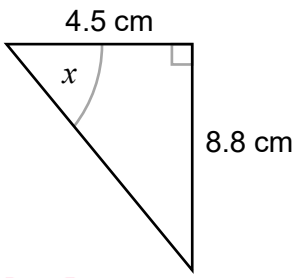
$\sin(x) = \frac{9}{11}$

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

$x = 54.90319877$

Answer 54.9 °

8 Use trigonometry to work out the size of angle x.



Not drawn accurately

[3 marks]

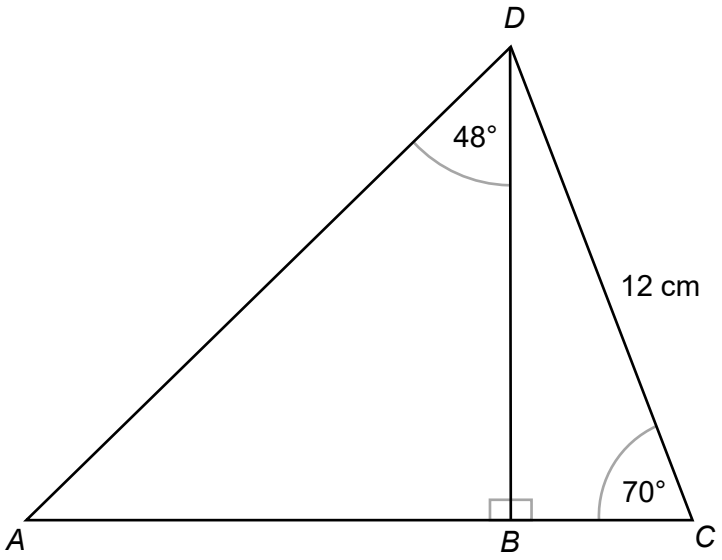
$\tan(x) = \frac{8.8}{4.5}$

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

$x = 62.91644914$

Answer 62.9 °

9



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Work out the length of *AC*. **[6 marks]**

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

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

$BC = 4.104\,24172$

$\sin(70) = \frac{BD}{12}$

$BD = 12 \times \sin(70)$

$BD = 11.276\,31145$

$\tan(48) = \frac{AB}{11.27\ldots}$

$AB = 11.27\ldots \times \tan(48)$

$AB = 12.523\,61262$

$AC = AB + BC$

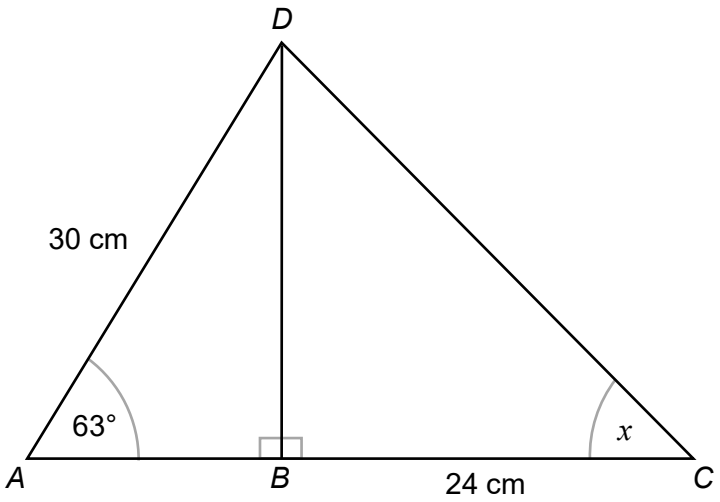
$= 12.52\ldots + 4.1\ldots$

$= 16.627\,85\ldots$

Answer 16.6 cm

12

10



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Work out the size of angle x. **[4 marks]**

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

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

$BD = 26.730\,19573$

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

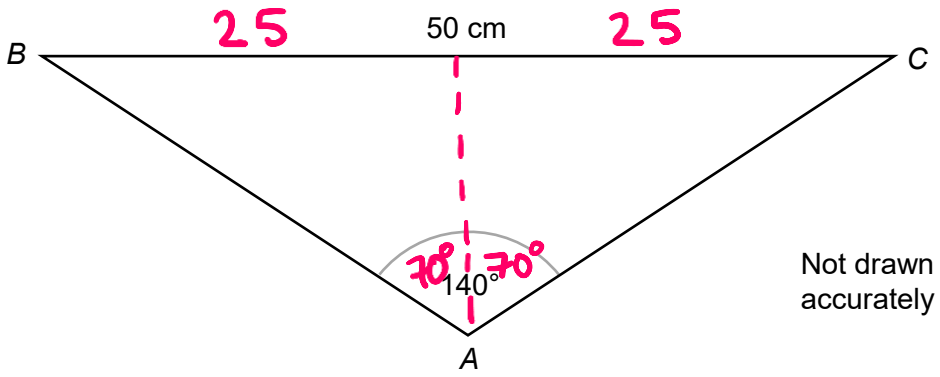
$x = \tan^{-1}\left(\frac{26.7\ldots}{24}\right)$

$x = 48.080\,5702$

48.1

Answer _____ °

11



Not drawn accurately

$AB = AC$

Work out the perimeter of triangle ABC. **[4 marks]**

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

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

$AB = 26.60444431$

$AC = 26.60444431$

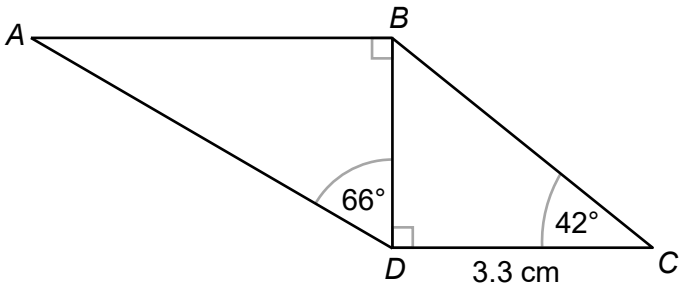
$P = 26.6\ldots + 26.6\ldots + 50$

$= 103.20888886$

Answer 103.2 cm

8

12



Not drawn accurately

Work out the length of *AD*. **[4 marks]**

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

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

$BD = 2.971333346$

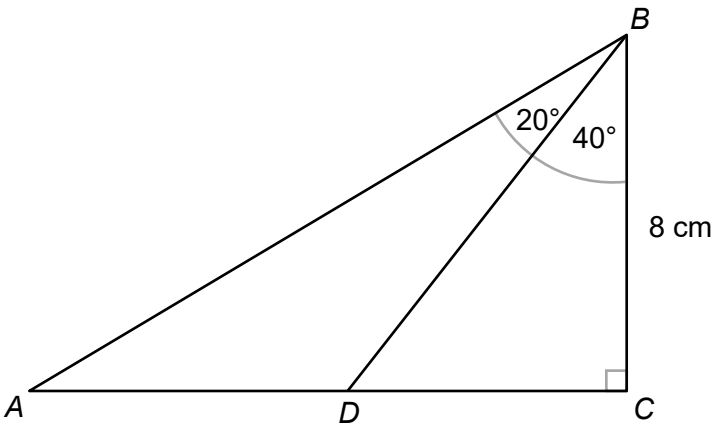
$\cos(66) = \frac{2.97...}{AD}$

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

$AD = 7.305300363$

Answer 7.31 cm

13



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Work out the length of *AD*. **[4 marks]**

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

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

$DC = 6.71279\,7049$

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

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

$AC = 13.856\,40646$

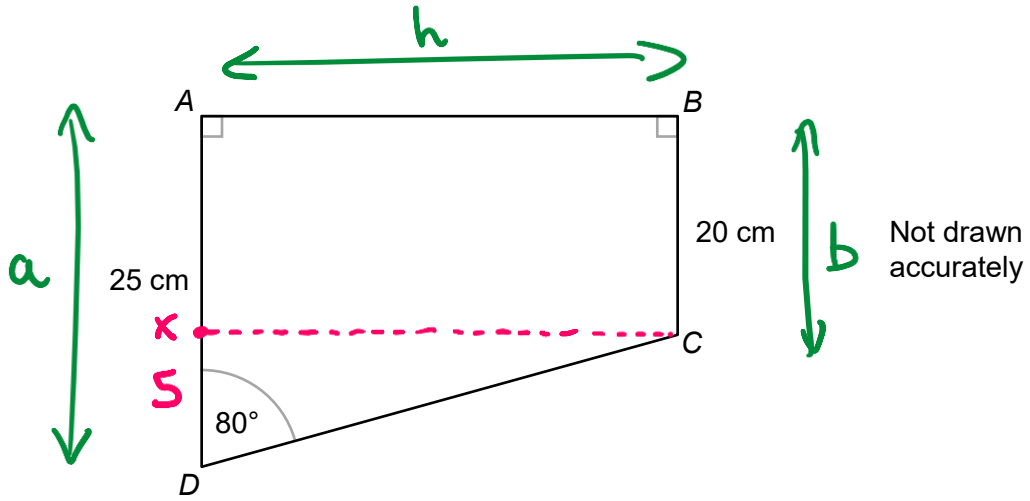
$AD = 13.85\ldots - 6.71\ldots$

$AD = 7.\,14\,360\,941\,1$

Answer 7.14 cm

8

14



Work out the area of trapezium *ABCD*. **[4 marks]**

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

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

$XC = 28.35640091$

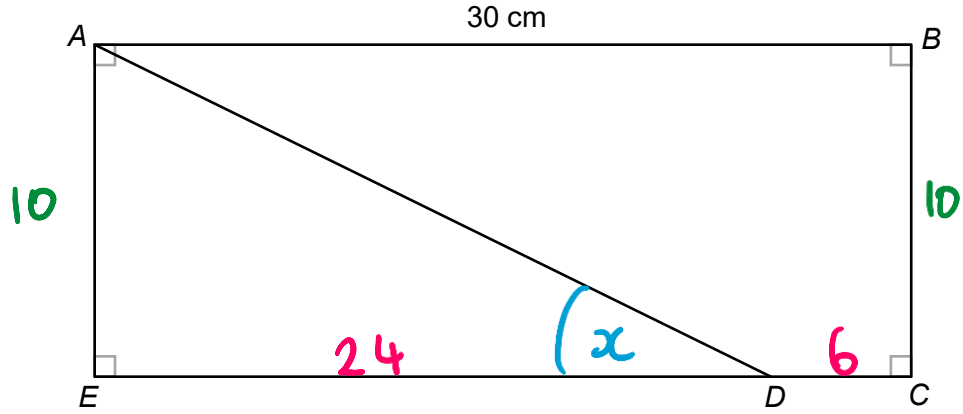
Area $= \frac{1}{2}(a+b)h$

$= \frac{1}{2}(25 + 20) \times 28.356\ldots$

$= 638.0192047$

Answer 638 cm^2

15



The perimeter of rectangle *ABCE* is 80 cm
ED : *DC* = 4 : 1
Work out the size of angle *ADE*.

[4 marks]

$30 \div 5 = 6$

$4 \times 6 = 24$

$1 \times 6 = 6$

$80 - 30 - 30 = 20$

$20 \div 2 = 10$

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

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

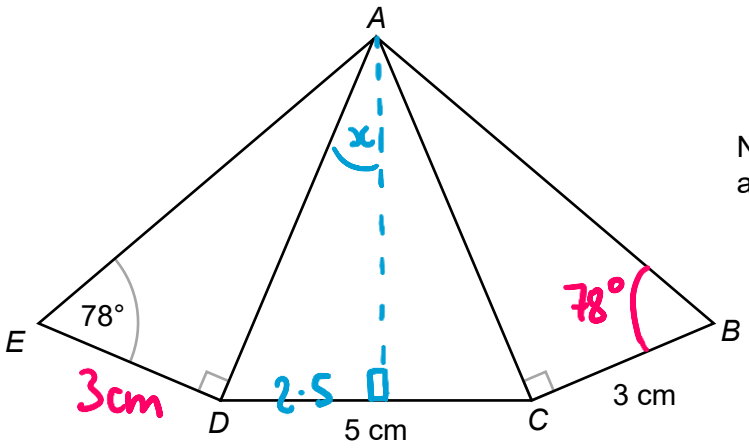
$x = 22.61986495$

Answer 22.6 °

8

Turn over ▶

16



Not drawn accurately

ABCDE is a pentagon formed from three triangles.
Triangles *ABC* and *ADE* are congruent.

Work out the size of angle *DAC*.

[4 marks]

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

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

$= 14.11389033$

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

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

$x = 10.20266209$

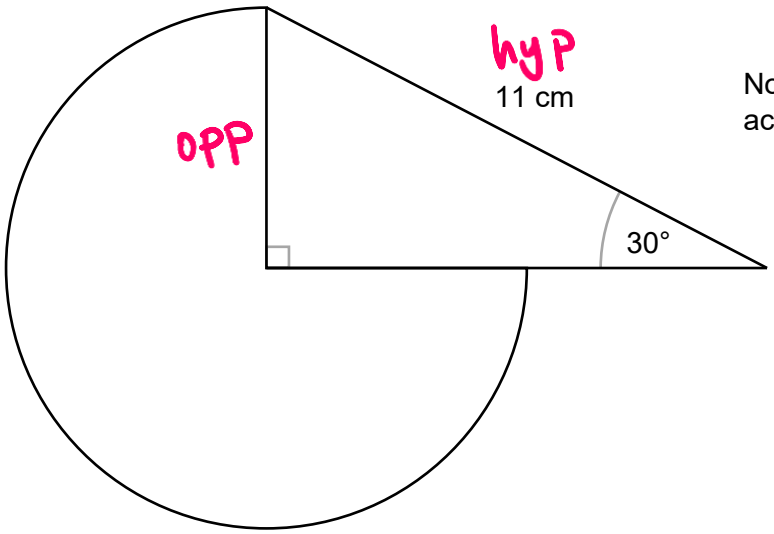
Angle DAC = 2x

$= 2 \times 10.20...$

$= 20.4053...$

Answer 20.4 °

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



Not drawn accurately

Work out the area of the sector.

[4 marks]

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

$opp = 11 \times \sin(30)$

$= 5.5$

$Area = \frac{3}{4} \times \pi \times 5.5^2$

$= 71.27488333$

Answer 71.3 cm^2

8