

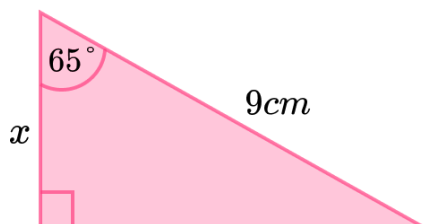
# SOHCAHTOA - Worksheet

## Skill

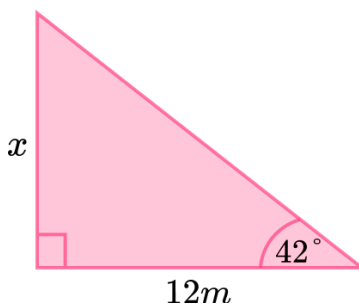
### Group A - Finding a side

Find the lengths of the sides labelled  $x$ :

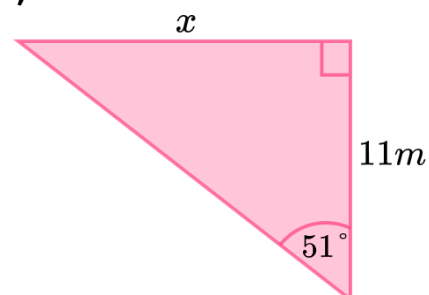
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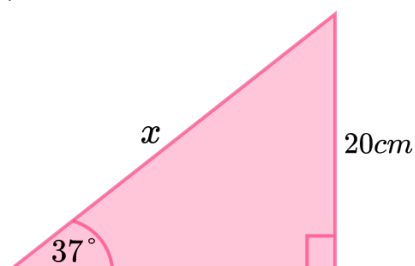
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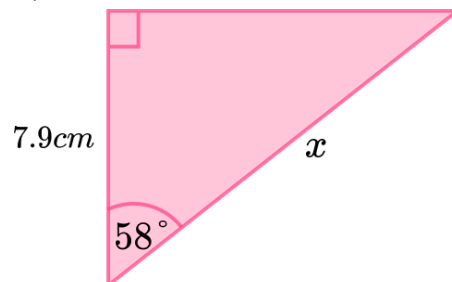
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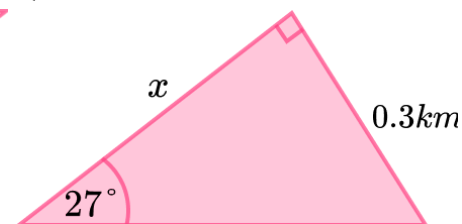
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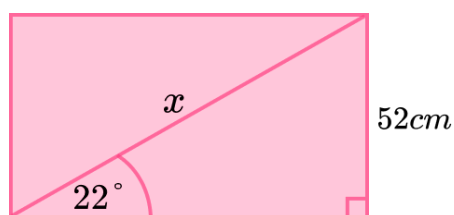
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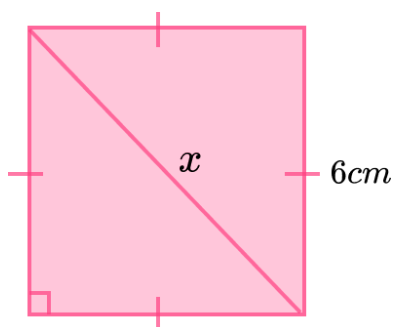
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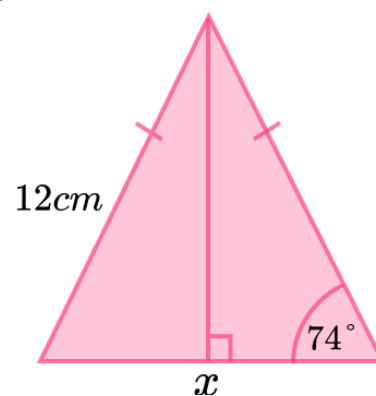
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8)

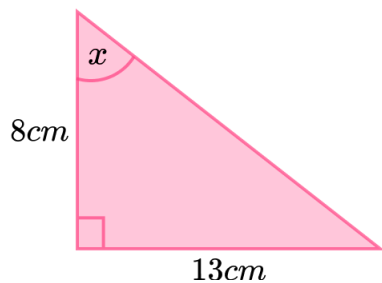


9)

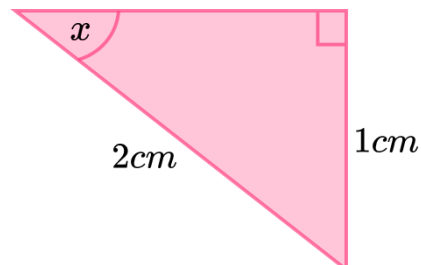


**SOHCAHTOA - Worksheet****Group B - Finding an angle**Find the size of the angles labelled  $x$ :

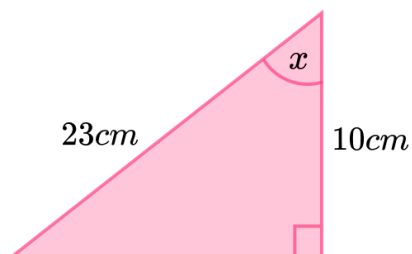
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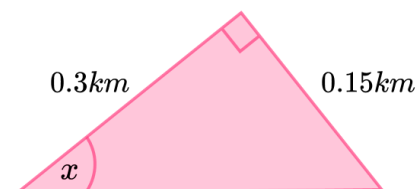
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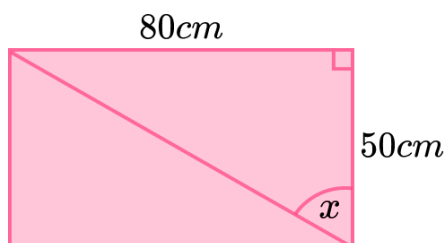
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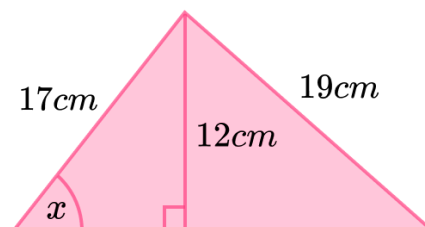
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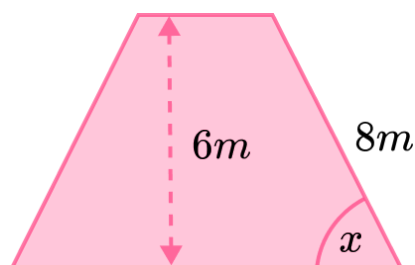
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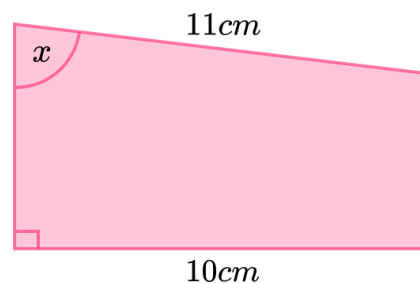
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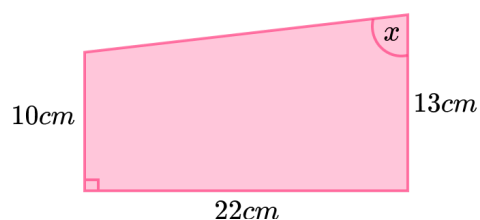
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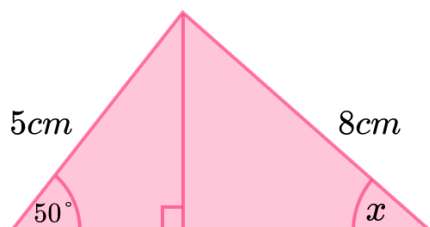


# SOHCAHTOA - Worksheet

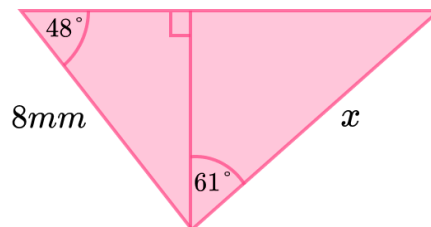
## Group C - Multi-step problems

Find the side or angle labelled  $x$ :

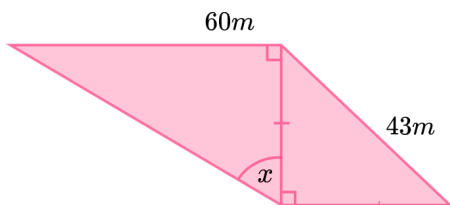
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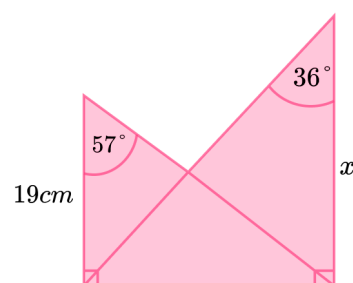
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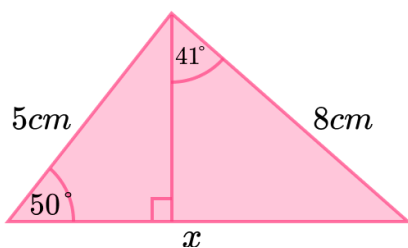
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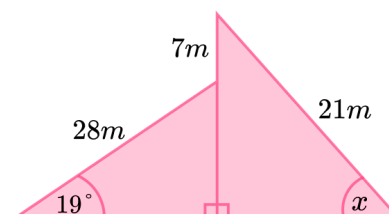
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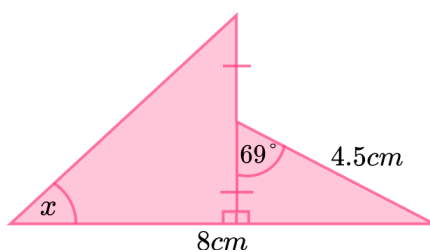
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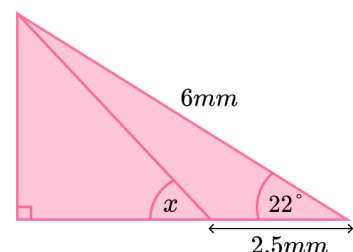
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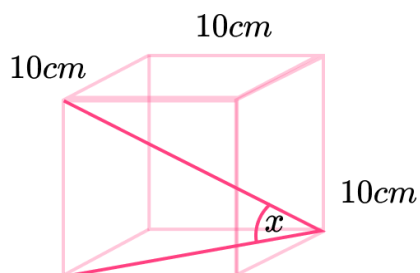
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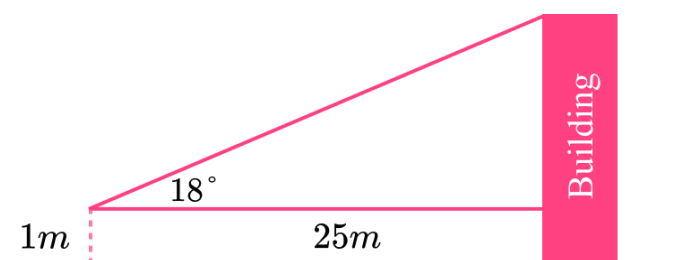
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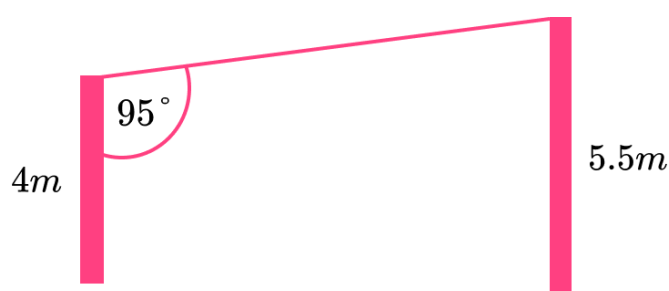
## SOHCAHTOA - Worksheet

### Applied

- 1) A ladder is placed against a wall so that it makes an angle of  $70^\circ$  with the floor. The ladder is  $3m$  long. How high up the wall does the ladder reach?
- 2) A ship sails  $40km$  south followed by  $51km$  west. Find the bearing on which the ship must sail to take a direct path back to its starting point.
- 3) Harry wants to know the height of a building. Whilst standing  $25m$  from the building, Harry measures the angle of incline to the building as  $18^\circ$ . If Harry was holding the inclinometer  $1m$  from the ground, find the height of the building.

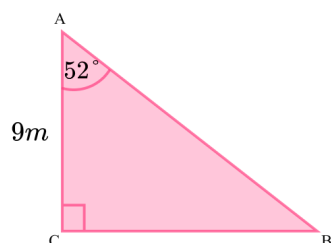


- 4) A zipwire will run between two posts, as shown below. Find the length of the zipwire.



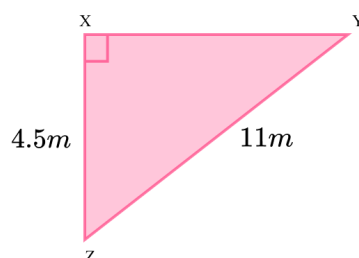
**SOHCAHTOA - Exam Questions**

- 1) (a)  $ABC$  is a right-angled triangle.  $AC = 9m$ . Angle  $BAC$  is  $52^\circ$ .  
Calculate the length of  $BC$ . Give your answer correct to 3.s.f.



.....  
(3)

- (b)  $XYZ$  is a different triangle.  $XZ = 4.5m$  and  $YZ = 11m$ .  
Calculate the size of the angle  $XYZ$ . Give your answer correct to 3.s.f.



.....  
(3)  
(6 marks)

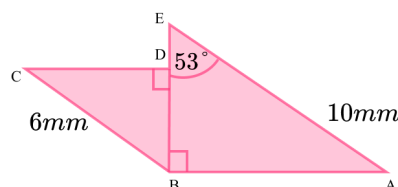
## SOHCAHTOA - Exam Questions

- 2) The shape  $ABCDE$  is made from two right-angled triangles.

Angle  $AEB = 53^\circ$

$AE = 10\text{mm}$

$BC = 6\text{mm}$



- (a) Calculate the length  $BE$ .

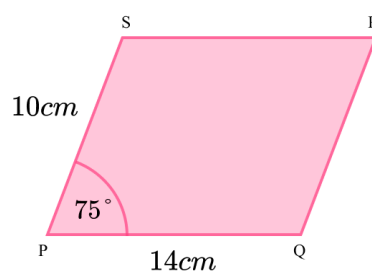
.....  
(3)

- (b) Calculate the size of the angle  $DCB$ .

$DE = 2\text{mm}$

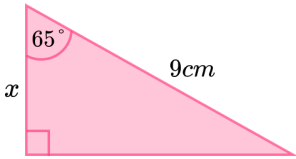
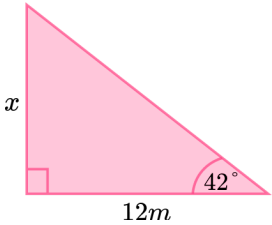
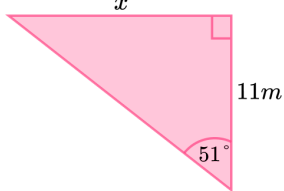
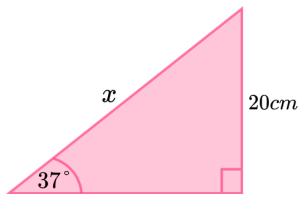
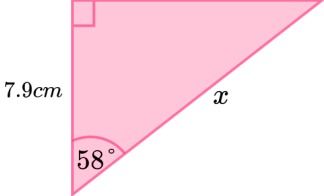
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(4)  
(7 marks)

- 3)  $PQRS$  is a parallelogram. Calculate the area of the parallelogram.

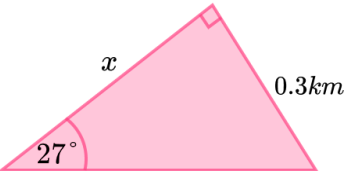
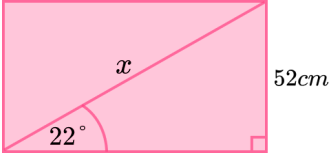
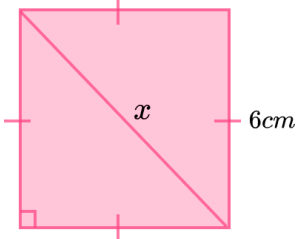
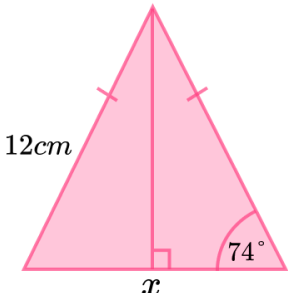


.....  
(5 marks)

# SOHCAHTOA - Answers

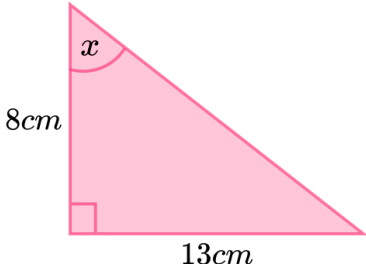
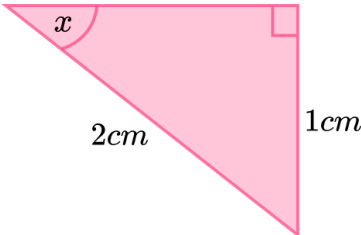
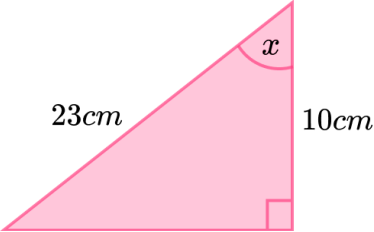
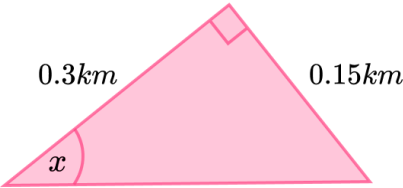
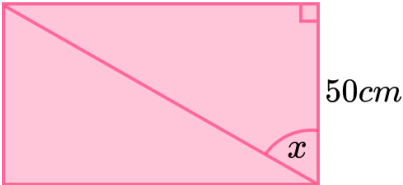
	Question	Answer
	Skill Questions	
Group A	<p>Find the lengths of the sides labelled <math>x</math>:</p> <p>1) </p> <p>2) </p> <p>3) </p> <p>4) </p> <p>5) </p>	<p>1) 3.8cm</p> <p>2) 10.8m</p> <p>3) 13.6m</p> <p>4) 33.2cm</p> <p>5) 14.9cm</p>

# SOHCAHTOA - Answers

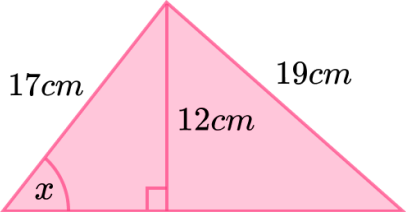
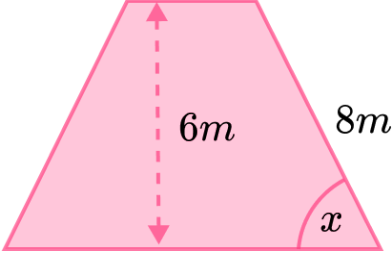
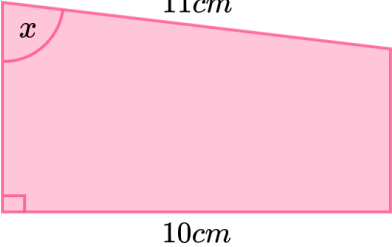
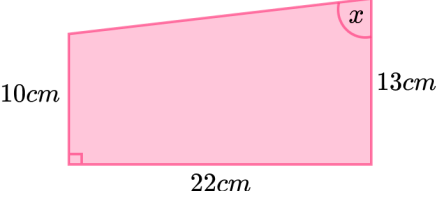
	<p>6)</p> 	<p>6) 0.6km</p>
	<p>7)</p> 	<p>7) 138.8cm</p>
	<p>8)</p> 	<p>8) 8.5cm</p>
	<p>9)</p> 	<p>9) 6.6cm</p>



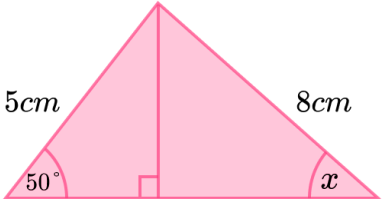
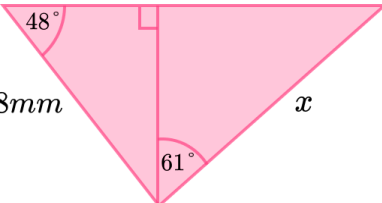
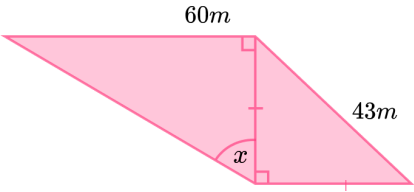
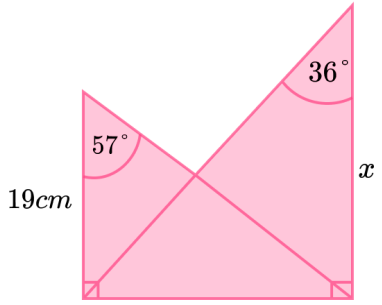
# SOHCAHTOA - Answers

Group B	<p>Find the size of the angles labelled <math>x</math>:</p> <p>1)</p>  <p>2)</p>  <p>3)</p>  <p>4)</p>  <p>5)</p> 	<p>1) <math>58.4^\circ</math></p> <p>2) <math>30^\circ</math></p> <p>3) <math>64.2^\circ</math></p> <p>4) <math>26.6^\circ</math></p> <p>5) <math>58.0^\circ</math></p>
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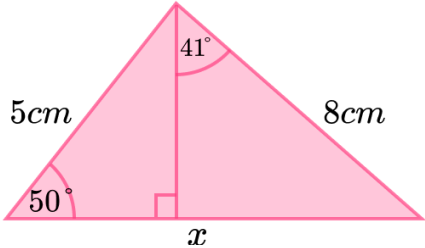
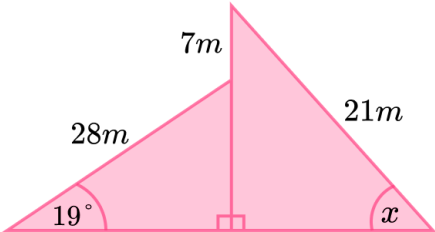
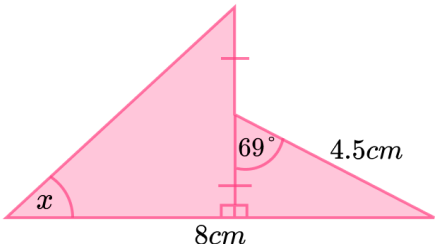
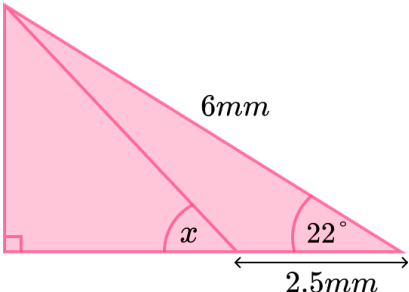
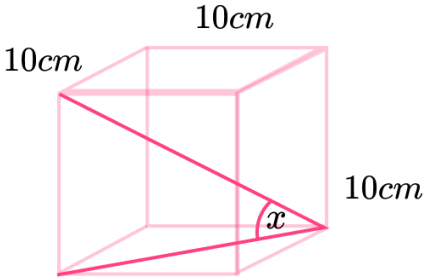
# SOHCAHTOA - Answers

Group B	<p>6)</p>  <p>7)</p>  <p>8)</p>  <p>9)</p> 	<p>6) <math>44.9^\circ</math></p> <p>7) <math>48.6^\circ</math></p> <p>8) <math>65.4^\circ</math></p> <p>9) <math>82.2^\circ</math></p>
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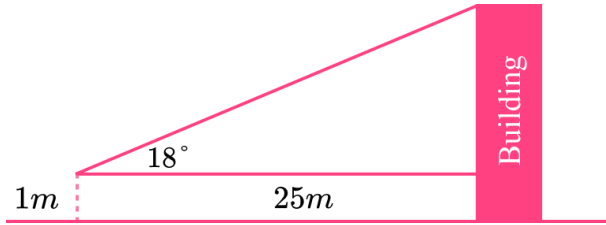

# SOHCAHTOA - Answers

	Question	Answer
Group C	Skill Questions	
	Find the side or angle labelled $x$ :	
	<p><b>1)</b></p> 	<b>1)</b> $28.6^\circ$
	<p><b>2)</b></p> 	<b>2)</b> $12.3\text{cm}$
	<p><b>3)</b></p> 	<b>3)</b> $63.1^\circ$
	<p><b>4)</b></p> 	<b>4)</b> $40.3\text{cm}$

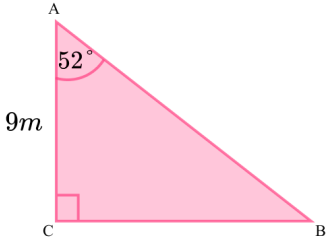
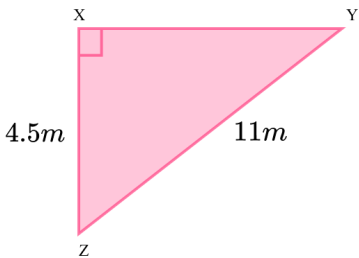
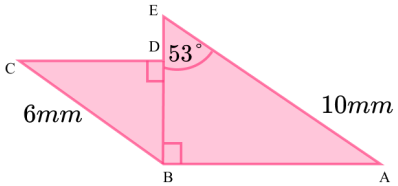
# SOHCAHTOA - Answers

Group C	<p><b>5)</b></p>  <p><b>6)</b></p>  <p><b>7)</b></p>  <p><b>8)</b></p>  <p><b>9)</b></p> 	<p><b>5)</b> 8.5cm</p> <p><b>6)</b> 50.1°</p> <p><b>7)</b> 40.3°</p> <p><b>8)</b> 36.3°</p> <p><b>9)</b> 35.3°</p>
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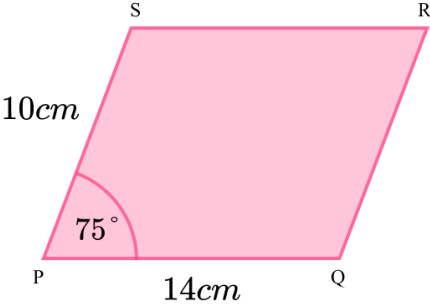
## SOHCAHTOA - Answers

	Question	Answer
	Applied Questions	
1)	A ladder is placed against a wall so that it makes an angle of $70^\circ$ with the floor. The ladder is $3m$ long. How high up the wall does the ladder reach?	$2.82m$
2)	A ship sails $40km$ south followed by $51km$ west. Find the bearing on which the ship must sail to take a direct path back to its starting point.	$052^\circ$
3)	<p>Harry wants to know the height of a building. Whilst standing <math>25m</math> from the building, Harry measures the angle of incline to the building as <math>18^\circ</math>. If Harry was holding the inclinometer <math>1m</math> from the ground, find the height of the building.</p> 	$9.12m$
4)	<p>A zipwire will run between two posts, as shown below. Find the length of the zipwire.</p> 	$17.2m$

# SOHCAHTOA - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	<p><math>ABC</math> is a right-angled triangle. <math>AC = 9m</math>. Angle <math>BAC</math> is <math>52^\circ</math>.</p>  <p>Calculate the length of <math>BC</math>. Give your answer correct to 3.s.f.</p>	<p>(a) <math>\tan(52) = \frac{BC}{9}</math></p> <p><math>BC = 9 \tan(52)</math></p> <p><math>BC = 11.5m</math></p>	<p>(1)</p> <p>(1)</p> <p>(1)</p>
(b)	<p><math>XYZ</math> is a different triangle.</p> <p><math>XZ = 4.5m</math> and <math>YZ = 11m</math>.</p>  <p>Calculate the size of the angle <math>XYZ</math>. Give your answer correct to 3.s.f.</p>	<p>(b) <math>\sin(Y) = \frac{4.5}{11}</math></p> <p><math>Y = \sin^{-1}\left(\frac{4.5}{11}\right)</math></p> <p><math>Y = 24.1^\circ</math></p>	<p>(1)</p> <p>(1)</p> <p>(1)</p>
2)	<p>The shape <math>ABCDE</math> is made from two right-angled triangles.</p>  <p>Angle <math>AEB = 53^\circ</math></p> <p><math>AE = 10mm</math></p> <p><math>BC = 6mm</math></p> <p>(a) Calculate the length <math>BE</math>.</p>	<p>(a) <math>\cos(53) = \frac{BE}{10}</math></p> <p><math>BE = 10 \cos(53)</math></p> <p><math>BE = 6.02mm</math></p>	<p>(1)</p> <p>(1)</p> <p>(1)</p>

## SOHCAHTOA - Mark Scheme

<b>(b)</b>	Calculate the size of the angle $DCB$ . $DE = 2mm$	<b>(b)</b> $BD = 6.018... - 2$ $BD = 4.018... mm$ $\sin(C) = \frac{4.018...}{6}$ <b>oe</b> $C = 42.0^{\circ}$	<b>(1)</b> <b>(1)</b> <b>(1)</b> <b>(1)</b>
<b>3)</b>	$PQRS$ is a parallelogram. Calculate the area of the parallelogram. 	Height of parallelogram: $\sin(75) = \frac{h}{10}$ $h = 10 \sin(75)$ $h = 9.659... cm$  Area of parallelogram: $9.659... \times 14$ $= 135.2cm^2$	<b>(1)</b> <b>(1)</b> <b>(1)</b>  <b>(1)</b> <b>(1)</b>

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