

Geometry 4H Assessment

THE ANSWERS

Higher Level



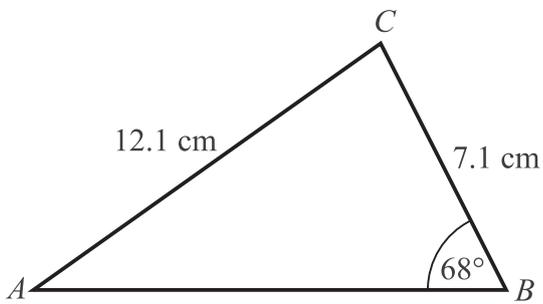
All questions

Clip	Grade	Title of clip	Question(s)	Marked out of	Score	%
201.....	7.....	The Sine Rule.....	1 - 3	11	___	___
202.....	7.....	The Cosine Rule.....	4 - 5	6	___	___
203.....	7.....	Area of a Triangle Using Sine.....	6 - 8	15	___	___
217 ...	8/9.....	Pythagoras in 3D.....	9	4	___	___
218 ...	8/9.....	Trigonometry in 3D.....	10	5	___	___
219 ...	8/9.....	Vectors.....	11 - 12	9	___	___

Out of 50 TOTAL SCORE _____

Final Percentage %

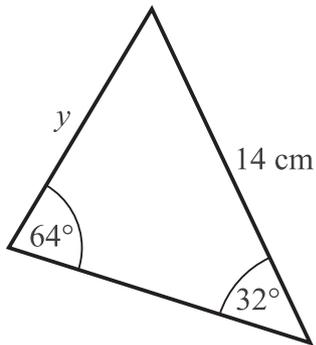
1)



Work out the size of angle A.

Give your answer to 1 decimal place. 33.0° 4

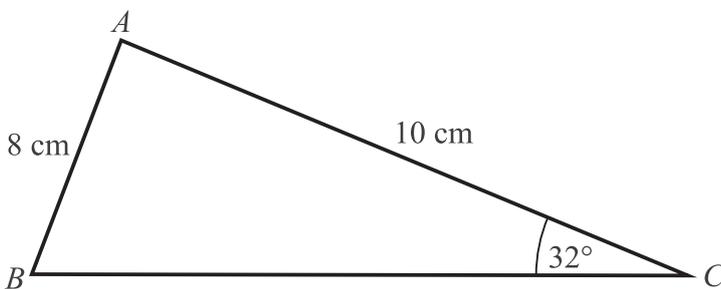
2)



Work out the value of y.

Give your answer to 1 decimal place. 8.3 cm 3

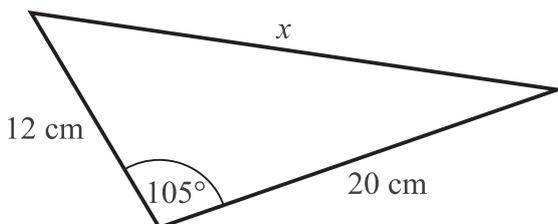
3) In the diagram, angle A is obtuse.



Work out the size of angle A.

Give your answer to 1 decimal place. 106.5° 4

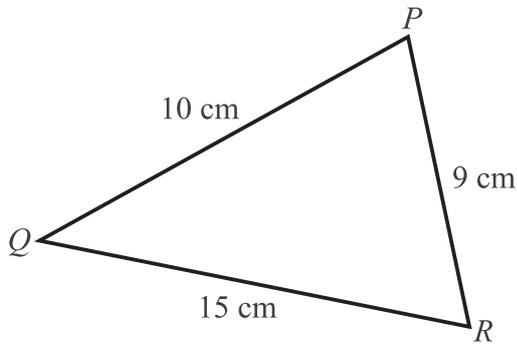
4)



Find the length of side x.

Give your answer to 3 significant figures. 25.9 cm 3

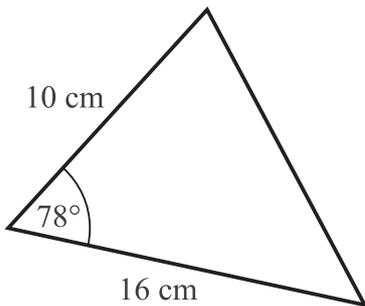
5)



Calculate the size of angle P .

Give your answer to 3 significant figures. 104° 3

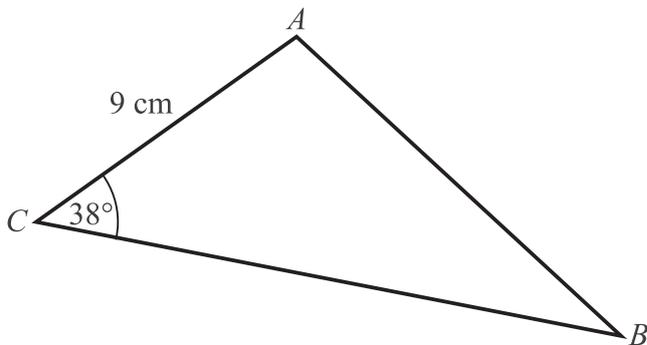
6)



Work out the area of this triangle.

Give your answer to 3 significant figures. 78.3 cm² 3

7)

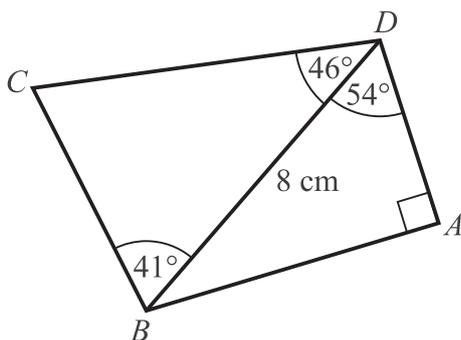


The area of the triangle is 120 cm^2 .

Work out the length of BC

Give your answer to 3 significant figures. 43.3 cm 5

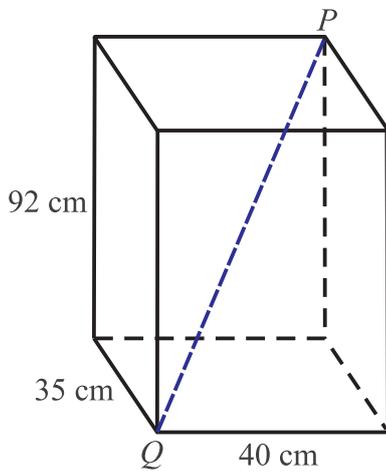
8)



Work out the area of $ABCD$.

Give your answer to 3 significant figures. 30.3 cm² 7

9)



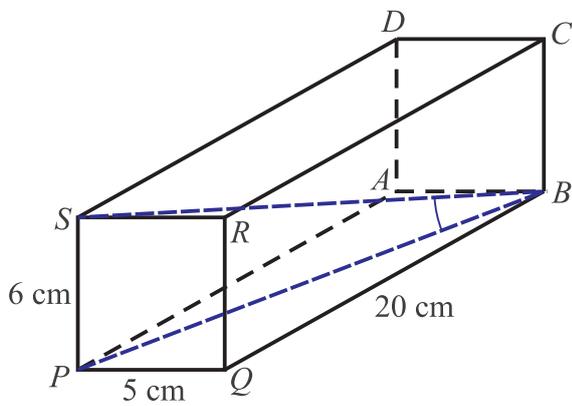
This is a picture of a cuboid.

Find the length of PQ .

Give your answer to 3 significant figures. 106 cm

4

10)



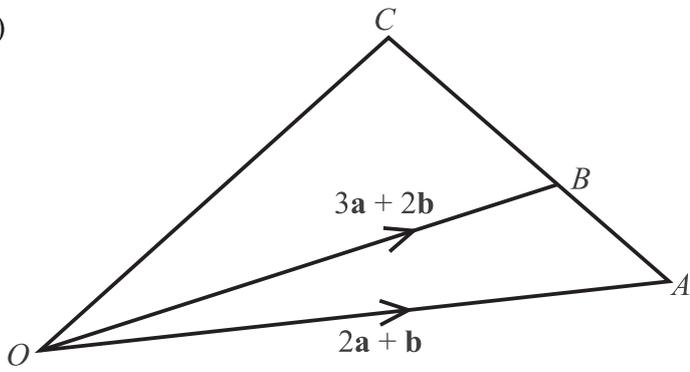
This is a picture of a cuboid.

Calculate angle PBS .

Give your answer to 3 significant figures. 16.2 °

5

11)



ABC is a straight line and $AB : BC = 2 : 5$

$$\vec{OA} = 2\mathbf{a} + \mathbf{b}$$

$$\vec{OB} = 3\mathbf{a} + 2\mathbf{b}$$

Express \vec{OC} in terms of \mathbf{a} and \mathbf{b}

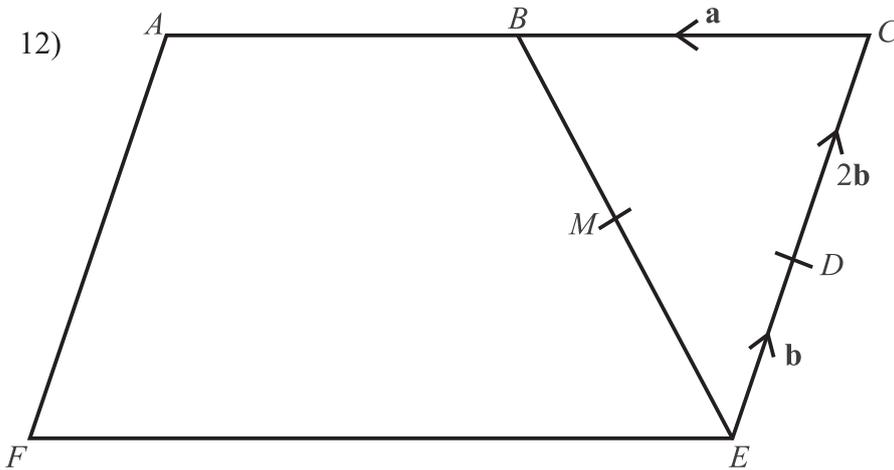
Give your answer in its simplest form. 4

$$\begin{aligned}\vec{AB} &= \vec{AO} + \vec{OB} \\ &= -2\mathbf{a} - \mathbf{b} + 3\mathbf{a} + 2\mathbf{b} \\ &= \mathbf{a} + \mathbf{b}\end{aligned}$$

$$\begin{aligned}\vec{BC} &= 2.5\vec{AB} \\ &= 2.5\mathbf{a} + 2.5\mathbf{b}\end{aligned}$$

$$\begin{aligned}\vec{OC} &= \vec{OB} + \vec{BC} \\ &= 3\mathbf{a} + 2\mathbf{b} + 2.5\mathbf{a} + 2.5\mathbf{b} \\ &= 5.5\mathbf{a} + 4.5\mathbf{b}\end{aligned}$$

12)



$ACEF$ is a parallelogram.

B is the midpoint of AC .

M is the midpoint of BE

$$\vec{CB} = \mathbf{a} \quad \vec{ED} = \mathbf{b} \quad \vec{DC} = 2\mathbf{b}$$

Show that AMD is a straight line. 5

$$\begin{aligned}\vec{AM} &= \vec{AB} + \vec{BM} \\ \vec{BM} &= 0.5\vec{BE} \\ &= 0.5(\vec{BC} + \vec{CE}) \\ &= -0.5\mathbf{a} - 1.5\mathbf{b} \\ \vec{AM} &= -\mathbf{a} - 0.5\mathbf{a} - 1.5\mathbf{b} \\ &= -1.5\mathbf{a} - 1.5\mathbf{b} \\ &= -1.5(\mathbf{a} + \mathbf{b})\end{aligned}$$

$$\begin{aligned}\vec{AD} &= \vec{AC} + \vec{CD} \\ &= -2\mathbf{a} - 2\mathbf{b} \\ &= -2(\mathbf{a} + \mathbf{b})\end{aligned}$$

AD and AM have the same direction $(\mathbf{a} + \mathbf{b})$ and a common point A .

Therefore, AMD is a straight line