Test - Trigonometry in right-angled triangles

Year: Year 9 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – The three ratios

A right-angled triangle has sides 5 cm, 12 cm and 13 cm. The angle A is opposite the side of 5 cm.

a. Write down $\sin A$, $\cos A$ and $\tan A$ as fractions. (3 marks)
b. Find angle A to 1 decimal place. (1 mark)

Question 2 (4 marks)

Question 2 – Finding sides

A right-angled triangle has a hypotenuse of 12 cm and an angle of 35°.

a. Find the side opposite the 35° angle. (2 marks)
b. Find the side adjacent to the 35° angle. (2 marks)

Question 3 (4 marks)

Question 3 – Finding angles

Find the angle θ in each right-angled triangle, to 1 decimal place.

a. Opposite 7 cm and adjacent 9 cm. (2 marks)
b. Adjacent 11 cm and hypotenuse 15 cm. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: the ladder

A 6 m ladder leans against a wall. It makes an angle of 70° with the ground.

a. How high up the wall does it reach? (2 marks)

b. How far is the foot of the ladder from the wall? (2 marks)

Question 5 (4 marks)

Question 5 – Problem: the tower

Sam stands 45 m from the foot of a tower and measures the angle of elevation of the top as 28°. His eyes are 1.6 m above the ground.

a. Find the height of the tower above Sam's eye level. (2 marks)
b. Find the height of the tower above the ground. (1 mark)
c. The tower is really 30 m tall. Find the angle of elevation from a point 45 m from the foot, using eye level at the ground. (1 mark)