**Trigonometry – Final Test** **Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***SOH CAH TOA***

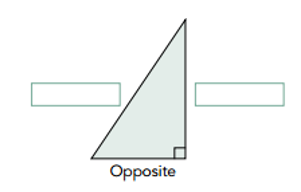
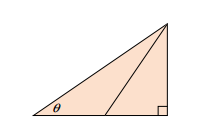
**Total: / 45**

**%**

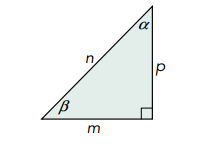
***Show all of your working for full marks.***

***Time limit: 30 minutes***

1. Label the hypotenuse, adjacent, opposite and the reference angle θ (in the first triangle), in the following right-angled triangles. [6 marks]

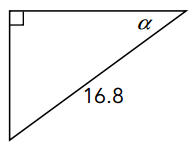
 

1. From the diagram, write a trigonometric ratio for each of the following: [5 marks]

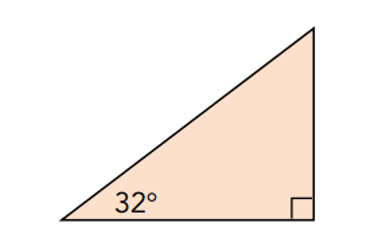


* 1. sin α
  2. tan β
  3. cos β
  4. What do you notice about the values of sin α and cos β?
  5. If sin 72o = cos θ, what is θ?

1. The hypotenuse of the right-angled triangle (pictured below) is 16.8 cm. It is known that cos α = ; find the length of the adjacent side. [4 marks]



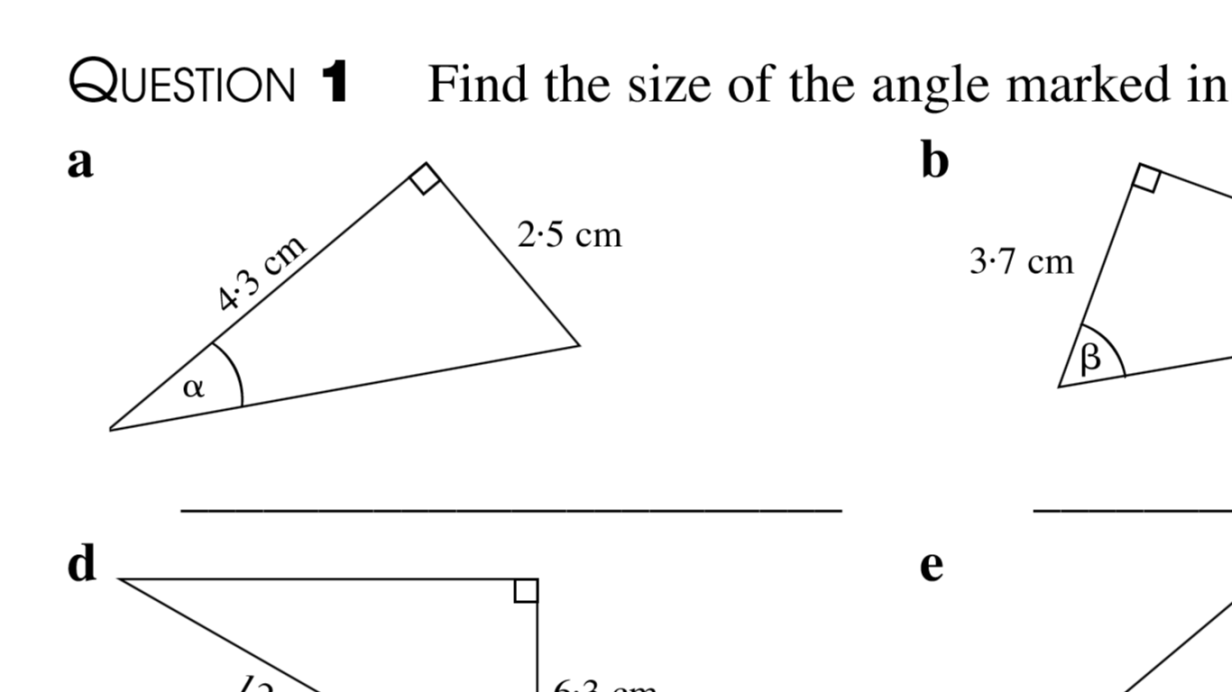
1. The right-angled triangle (pictured below) has a reference angle of 32o and the hypotenuse is 70 cm. Use the correct trigonometric ratio to solve for the unknown adjacent side. [3 marks]



*z* cm

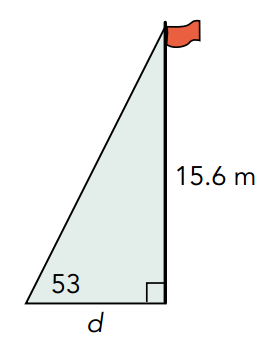
70 cm

1. The following right-angled triangle has a tan**α** ratio of 0.58. Suppose that the adjacent was instead 12.9 cm long and the opposite was 7.5 cm long, but the angle (**α)** remains the same. [3marks]

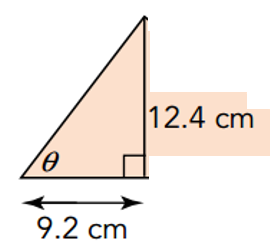


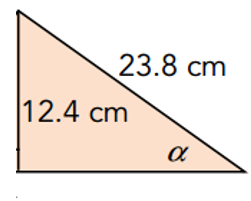
* 1. What would you expect the tan**α** ratio to be in the new triangle?
  2. Explain, with reasons, why this would be.

1. A 9m slide at a playground makes an angle of 28° with the ground. How high above the ground, correct to one decimal place, is the top of the slide? (Hint: Draw a diagram.) [4 marks]
2. A 15.6 m flagpole is attached to a guy rope that makes an angle of 53° with the ground. What is the distance from the guy rope to the base of the flagpole, correct to one decimal place? [4 marks]



1. A tent has a vertical pole 1.8 m tall. How long is the guy rope attached to the tent pole if the angle between the ground and the rope is 40o? (Hint: Draw a diagram.) [5 marks]
2. Find the two unknown angles, α and θ in the following diagrams. Give your answers correct to one decimal place. [6 marks]





1. A ladder is 5 m long and when placed against the wall it reaches 2.6 m up the wall. Calculate the angle formed between the ladder and the ground. (Hint: Sketch a diagram) [5 marks]