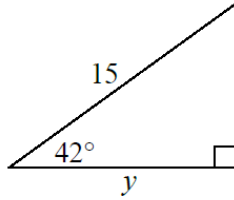


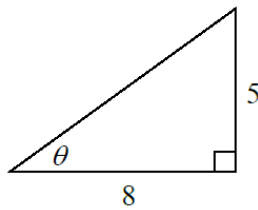
Basic Trigonometry – Section Test

There is no need to include units in your answers to the following test, all angles are given in degrees.

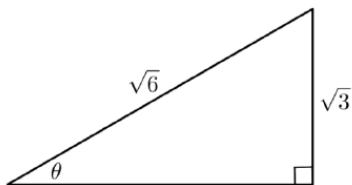
- 1) Find the length marked y in the triangle below. Give your answers to 3 significant figures.



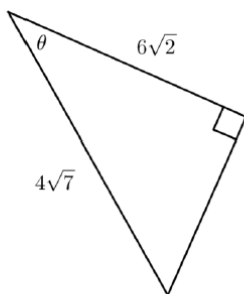
- 2) Find the angle θ in the triangle below. Give your answers to 2 significant figures.



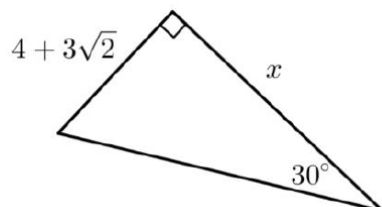
- 3) Find the exact angle θ in the triangle below **without** using a calculator.



- 4) Find the angle θ in the triangle below. Give your answer to 3 significant figures.



- 5) Find the exact value of the side marked x in the triangle below.
Give your answer in the form $p\sqrt{3} + q\sqrt{6}$ where p and q are integers.



- 6) The hypotenuse of a right-angled triangle is $5 + 4\sqrt{3}$ and one of the other sides has length $3 + \sqrt{3}$. Determine the angles in the triangle, give your answers to 3 significant figures in ascending order.

Questions 7 and 8 are about the following situation.

A window cleaner needs to reach some windows on the second floor of a house. The window is 4.8 meters above the horizontal ground. For the ladder to be considered safe to climb up, it must be placed at an angle between 56° and 78°

- 7) What is the shortest length ladder the window cleaner can use but still reach the window and be safe? Give your answer to three significant figures.
- 8) Directly underneath one of the second-floor windows there is a square flowerbed which extends 3.3 meters from the base of the house. The house owner doesn't want the window cleaner to put the ladder in the flowerbed, can he do this while keeping the ladder at a safe angle?
- 9) A drone hovers at a point directly above the sea. It flies diagonally downwards at a 63° angle of depression towards a boat on the sea. There is a cliff 25 meters horizontally from the start point which is 42 meters high. What is the lowest integer value n such that if the drone is above n metres high to begin with then it will clear the cliff?
- 10) A lifeboat sails on a bearing of 132° from a lighthouse A to a point B . It then sails on a bearing of 222° for 40km to C and then back to A . What is the distance from C to A marked x on the diagram below? Give your answer to 3 significant figures.

