

## TRIGONOMETRY

25 AUGUST 2014



### Lesson Description

In this lesson we:

- Solve 2-D Trigonometry problems



### Summary

Trigonometry is commonly used to find the height of towers and mountains by land surveyors and is used in navigation to find the distance to a point at sea.



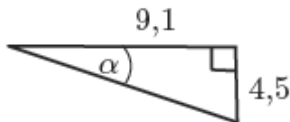
### Test Yourself

#### Question 1

A boy flying a kite is standing 30 m from a point directly under the kite. If the kite's string is 50 m long, the angle of elevation of the kite is:

- A)  $53.13^\circ$
- B)  $27.3^\circ$
- C)  $62.87^\circ$
- D)  $36.87^\circ$

#### Question 2



The angle  $\alpha$  is equal to:

- A)  $63.7^\circ$
- B)  $60.4^\circ$
- C)  $26.3^\circ$
- D)  $29.36^\circ$

#### Question 3

From a distance of 300 m, Susan looks up at the top of a lighthouse. The angle of elevation is  $5^\circ$ . Determine the height of the lighthouse to the nearest metre.

- A) 35m
- B) 42m
- C) 26m
- D) 23m

**Question 4**

A ladder of length 25 m is resting against a wall, the ladder makes an angle  $37^\circ$  with the wall. Find the distance between the wall and the base of the ladder.

- A) 15.05m
- B) 12.53m
- C) 14.04m
- D) 30m

**Improve your Skills****Question 1**

Captain Jack is sailing towards a cliff with a height of 10 m. The distance from the boat to the bottom of the cliff is 30 m.

- a) Calculate the angle of elevation from the boat to the top of the cliff (correct to the nearest integer).
- b) If the boat sails 7 m closer to the cliff, what is the new angle of elevation from the boat to the top of the cliff?

**Question 2**

In the diagram AB represents a building that is 145m high. The angles of depression to the cars at C and D are  $57^\circ$  and  $42^\circ$  respectively. Calculate the distance between the two cars.

**Question 3**

The width of a rectangular hall floor is 30m and makes an angle of  $58^\circ$  with the diagonal across the floor.

- a) Calculate the length of the diagonal across the floor
- b) Calculate the length of the hall