Name: _____ Date: _____

BLM 1–4

Section 1.2 Solve Problems Using Trigonometric Ratios

1. Explain each term in your own words.
a) angle of elevation
b) angle of depression

2. A 5-m ladder is resting against a wall. The base of the ladder is 2 m along the ground from the base of the wall. What angle does the base of the ladder make with the ground? Express your answer to the nearest tenth of a degree.

3. An 80-m tower is supported by a guy wire attached to the top of the tower. If the wire forms an angle of elevation of 79°, how long is it? Express your answer to the nearest tenth of a metre.

4. Jason is flying his kite. He lets out 63 m of string and the wind takes his kite up to a point where the angle of elevation of the kite is 58°. Find the altitude of the kite to the nearest metre.

5. The ancient Greek mathematician Talis used trigonometry to find the slant side length of the face of the Great Pyramid of Giza. An archeologist wants to replicate Talis's calculations. She measures the base length along one side of the pyramid to be 230 m and the angle of elevation of the side to be 52°. Calculate the slant side length.

6. The highest point along a cliff is 80 m above the lakeshore. A surveyor stands on the top of the cliff, looking through a 1.5 m tall transit instrument. He spots a boat out on the lake, at an angle of depression of 38°. How far, to the nearest tenth of a metre, is it from the boat to the base of the cliff?

7. Michael stands 10.0 m from the base of a building. He measures the angle of elevation to the top of the building to be 65.0°. Michael's measurement was made from 1.5 m above the ground. Determine the height of the building to the nearest metre.

8. A search and rescue helicopter is flying at an altitude of 500 m. As it passes over a field, the pilot spots a campfire at an angle of depression of 23.5°. If the helicopter were to land in the field directly below it, how far would the crew have to travel to reach the campfire?

9. Two buildings are 60 m apart. The angle of depression from the top of the taller building to the top of the shorter building is 15°. The height of the shorter building is 30.4 m. What is the height of taller building? Express your answer to the nearest tenth of a metre.