NOTES
TRIGONOMETRY

For each of the following, draw a diagram and answer the question.
1. An engineer wishes to estimate the height of a building. He knows that when he stands 225 feet from the base of the building, the angle of elevation to the roof is 18°. To the nearest foot, what is the approximate height of the building?

2. If a 20-foot ladder reaches 18 feet up a wall, what angle does the ladder make with the ground, to the nearest degree?

3. From the top of a lighthouse 160 feet above sea level, the angle of depression to a boat at sea is 25°. To the nearest foot, what is the horizontal distance from the boat to the base of the lighthouse?

4. A pilot takes off at point A and ascends at a fixed angle with the level runway. If he flies a distance of 2,500 yards but covers only a ground distance of 2,200 yards, than what is his angle of ascent, to the nearest degree?
5. A ship on the ocean surface detects a sunken ship on the ocean floor at an angle of depression of 50°. The distance between the ship on the surface and the sunken ship on the ocean floor is 200m. If the ocean floor is level in this area, how far above the ocean floor, to the nearest meter, is the ship on the surface?

6. A man 6 feet tall walks 75 feet from the base of a tree. He uses a protractor to measure the angle from his eye to the top of the tree. He finds it to be about 25°. Find the height of the tree to the nearest foot.

7. A large totem pole is 118 feet tall. On a particular day at noon it casts a 198-foot shadow. What is the sun's angle of elevation, to the nearest degree, at that time?

8. A lookout spots a fire from a 26-meter tower. The angle of depression from the tower to the fire is 17°. To the nearest meter, how far is the fire from the base of the tower?