Name_____   Geometry   8-4 Worksheet
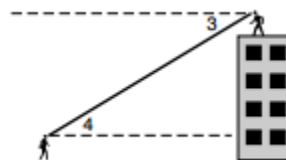
Classify each angle as an angle of elevation or an angle of depression.

1. ∠3_____

2. ∠4_____

Solve each problem below. Round measures of lengths to the nearest whole number and angles to the nearest whole degree. Answers are provided. Show your work to earn credit.

3. The angle of elevation from point A to the top of a hill is 49°. If point A is 400 feet from the base of the hill, how high is the hill?

4. Find the angle of elevation of the sun when a 12.5-meter-tall telephone pole casts an 18-meter long shadow.

5. A ladder leaning against a building makes an angle of 78° with the ground. The foot of the ladder is 5 feet from the building. How long is the ladder?

6. Susan is standing on the runway of an airport 100 feet from the control tower. The angle of elevation from her eyes, which is 5 ft above the ground, is 52° to the top of the control tower. Find the height of the control tower.

7. The angle of depression from the top of a sheer cliff to point A on the ground is 35°. If point A is 280 feet from the base of the cliff, how tall is the cliff?

8. The angle of depression from a balloon on a 75-foot string to a person on the ground is 36°. How high is the balloon?

9. A ski run is 1000 yards long with a vertical drop of 208 yards. Find the angle of depression from the top of the ski run to the bottom.

10. From the top of a 120-foot-high tower, an air traffic controller observes an airplane on the runway at an angle of depression of 19°. How far from the base of the tower is the airplane?

11. If the tangent of an angle is $\frac{2}{7}$, what is the cosine of the same angle? What is the sine of the same angle?

12. If $sin\alpha = \frac{7}{25}$ and $cos\alpha = \frac{24}{25}$, then $tan\alpha =$?

ANSWERS: 3) 460 feet   4) 35°   5) 24 feet   6) 133 feet   7) 196 feet   8) 44 feet   9) 12°   10) 349 feet

11) $\frac{7\sqrt{53}}{53}, \frac{2\sqrt{53}}{53}$ 12) $\frac{7}{24}$