Geometry Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Applications Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A penny dropped from the top of the Leaning Tower of Pisa falls to a point 14 feet from its base. If the tower is 182 feet, at what angle does it lean at the ground?

2. Beyoncé is on stage at her concert and you are standing 20 meters away from the base of her stage. If she goes down a 50 meter slide off of her stage and knocks you over, what is the angle the slide makes with the floor?

3. You are at the top of the Statue of Liberty and see a boat in the Hudson River. The Statue of Liberty is 305 feet and the angle of depression to the boat is 200. What is the direct distance from you to the boat?

4. A 90-foot escalator rises 28 feet vertically. What is the angle that the escalator makes with the floor?

5. A guy wire supports a telephone pole. If the pole is 17 yards tall and the angle between the wire and the pole is 13o, how far is the base of the wire from the base of the pole?

6. A plane is flying at an altitude of 35,000 feet. The direct distance between the plane and the runway is 100,000 feet. What angle of decent must the pilot to fly so that he lands at the beginning of the runway?

7. A ladder is mounted on a fire truck, six feet above the ground. If the maximum length of the ladder is 120 feet and the maximum angle to which it can be raised is 75°, how high up will it reach?

8. A 55-foot line is attached to a kite. When the kite has pulled the line taut (tight), the angle of elevation to the kite is approximately 45o. Approximate the height of the kite.

9. The height of an outdoor basketball backboard is 12 ½ feet, and the backboard casts a shadow 17 ½ feet long. Approximate the angle of elevation of the sun.

10. From a 40-foot observation tower on the coast, a Coast Guard officer sights a boat in difficulty. The angle of depression of the boat is 8o. How far is the boat from the shoreline?

11. During takeoff, an airplane’s angle of climb is 16° and its speed is 275 feet per second. Approximate the plane’s altitude after 1 minute.