Worksheet 10

Math 251, Summer 2017

Name: _____

I have given you the answers on the bottom of the last page. You must figure out how to solve the problem to get the correct answer.

---

1. A spotlight on the ground shines on a wall 12m away. If a man 2m tall walks from the spotlight toward the building at a speed of 1.6 m/s, how fast is the length of his shadow on the building decreasing when he is 4m from the building?

2. A trough is 10 ft long and its ends have the shape of isosceles triangles that are 3 ft across at the top and have a height of 1 ft. If the trough is being filled with water at a rate of 12 ft^3/min, how fast is the water level rising when the water is 6 inches deep?

3. Two cars start moving from the same point. One travels north at speed 60 mi/hr, and the other travels west at 25 mi/hr. At what rate is the distance between the cars changing at two hours later?

4. A plane flying horizontally at an altitude of 1 mi and a speed of 500 mi/hr passes directly over a radar station. Find the rate at which the distance from the plane to the station is increasing when it is 2 mi away from the station.

Answers: 1) 0.6 m/s. 2) 0.8ft/sec. 3) 111.15 mi/hr. 4) 447.2 mi/hr.