Related Rates

Date_____

Solve each related rate problem.

1) A jet is flying toward an airport at a constant altitude of 6 miles above the ground. If the distance, z, between the jet and the airport is decreasing at a rate of 400 miles per hour when $z = 10$ miles, what is the horizontal speed of the jet?

2) A person who is 2 meters tall walks toward a lightpost at a rate of 0.5 meters per second. The light on the lightpost is 5 meters tall. How fast is the length of the person's shadow decreasing when the person is 3 meters from the lightpost?

3) An inverted cone has a diameter of 4 inches and has a height of 6 inches. Coffee is leaking out of the bottom at a rate of 2 inches cubed per second. How fast is the water level dropping when the height of the water is 3 inches?

4) A ladder 10 feet long is leaning against a vertical wall with the other end on the ground. The top of the ladder is sliding down the wall. When the top of the ladder is 6 feet from the ground it is sliding down at 2 feet per second. How fast is the bottom moving away from the wall at that instant?

Answers to Related Rates (ID: 1)

1) 2) 3) 4)

Calculus Name_____ ID: 1

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