

Name: \_\_\_\_\_

1. A 13-foot ladder is sliding down a wall. When the base of the ladder is 5 feet from the wall, the top of the ladder is moving downward at 2 feet per second. How fast is the base of the ladder moving away from the wall at this instant? Show your work.

Name: \_\_\_\_\_

1. You and your friend start walking away from each other: you walk due north, your friend walks due east. At some point, you have walked 300 feet in your direction and your friend has walked 400 feet in their direction. You are walking at 4 feet per second and your friend has slowed down to 2 feet per second.

At what rate is the (diagonal) distance between you increasing at this instant?

Name: \_\_\_\_\_

1. A lumberjack has tied a rope to a stake in the ground 6 feet from the base of a tree. As she climbs the tree, she holds the rope tight, letting more rope out as needed. When she is 8 feet above the ground, she is climbing at a rate of 2 feet per second. At what rate is the length of the rope increasing at this instant?

Name: \_\_\_\_\_

1. You have shot a giant shark with a harpoon and attached the wire to a spool secured 8 feet above the water. The shark swims away from the boat in a straight line, pulling the wire with it. When the wire has been let out 17 feet, it is being pulled out at a rate of 10 feet per second. How fast is the shark swimming at this instant?