

1. Find all the points on the circle $x^2 + y^2 = 1$ at which the slope of the tangent to the circle has slope equal to 2.

2. A ladder 13 feet long leans against a wall. If the top of the ladder is 5 feet above the ground and is slipping downward at a rate of 2 feet per second, how quickly is the bottom of the ladder sliding away from the wall?