Example 1. Gravel is being dumped from a conveyor belt onto the top of a conically shaped pile whose base diameter and height are always the same. If the gravel is poured on at a rate of 30 ft^3/min, how fast is the height of the pile increasing when the pile is 10 ft high?

Example 2. At noon, ship A is 100 km west of ship B. Ship A is sailing south at 35 km/h and ship B is sailing north at 25 km/h. How fast is the distance between the ships changing at 4:00 P.M.?

Example 3. A kite 100 ft above the ground moves horizontally at a speed of 8 ft/s. At what rate is the angle between the string and the horizontal decreasing when 200 ft of string has been let out?