

(4.6) Related Rates Assignment #1

Meet the Rates (They're Related) & Rates Related to the Previous Page

Solve the following problems, assuming that all variables are functions of the variable t .

537. If $xy = -3$ and $\frac{dx}{dt} = 1$, then find $\frac{dy}{dt}$ when $x = 6$.

538. If $x^2 - y^2 = 39$ and $\frac{dx}{dt} = 2$, then find $\frac{dy}{dt}$ when $y = 5$.

Solve each of the following problems.

543. Assume Clark and Lana leave Smallville Stadium from the same point at the same time. If Clark runs south at 4 mph and Lana runs west at 3 mph, how fast will the distance between Clark and Lana be changing at 10 hours?

(4.6) Related Rates Assignment #1

547. The talented Ed Wynwyte is flying a kite at a constant height of 400 meters. The kite is moving horizontally at a rate of 30 m/sec. How fast must he unwind the string when the kite is 500 m away from him?

548. A ladder 15 feet tall leans against a vertical wall of a home. If the bottom of the ladder is pulled away horizontally from the house at 4 ft/sec, how fast is the top of the ladder sliding down the wall when the bottom of the ladder is 9 feet from the wall?