

4.6 Related Rates Day 2

Ex 1) A car is headed east from an intersection at 50 ft/sec. A radio tower is 80 ft south of the intersection. How fast is the distance between the car and the radio station changing at $t = 3$ seconds?

Ex 2) A balloon rises 1 ft/sec. When a bike is traveling at 17 ft/sec is directly below the balloon, the balloon's height is 65 feet. How fast is the angle of elevation changing at $t = 3$ seconds?

Ex 3) The length of a rectangle increases at 2 in/min and the width decreases at 2 in/min. What happens to the area?

- A. Area always increases
- B. Area always decreases
- C. Area is always constant
- D. Area increases when $w > l$
- E. Area increases when $l > w$

Ex 4) Water runs into a cylindrical tank at $9 \text{ ft}^3/\text{min}$. How fast is the water level rising when $h=6\text{ft}$ and $r=5\text{ft}$?

Ex 5) Wheat is pouring from a chute at $10 \text{ ft}^3/\text{min}$ and forms a conical pile. The radius is half the height. How fast is the height rising when the pile is 8 feet high?