## Section 11.4- Related Rates <br> Math 1100-4

## Examples

1. The radius of a circle is increasing at a rate of $3 \mathrm{ft} / \mathrm{sec}$. At what rate is the area changing when the radius is 4 feet?
2. Suppose that the monthly revenue and cost (in dollars) for $x$ units of a product are $R=400 x-\frac{x^{2}}{20}$ and $C=5000+70 x$. At what rate per month is the profit changing if the number of units produced and sold is 100 and is increasing at a rate of 10 units per month?
3. A 10 foot ladder is leaning against a wall. If the ladder is sliding down the wall at a rate of $2 \mathrm{ft} / \mathrm{sec}$, at what rate is the base of the ladder sliding along the ground away from the wall when the top of the ladder is 8 feet from the ground?
4. The volume of a spherical balloon is changing at a rate of 3 cubic inches per second. At what rate is the radius changing when the radius is 4 inches?
