

Example #2: In 2004, there were 5545 women who participated in collegiate lacrosse. In 2008, there were 6830. What is the rate of change of women in collegiate sports over this time period?

$$\text{rate of change} = \frac{\text{change in } y}{\text{change in } x}$$

of women vs time
 x-value
 "over" time

"change" = subtraction

$$\frac{6830 - 5545}{2008 - 2004} = \frac{1285}{4}$$

Answer is a decimal

$$= 321.25 \text{ women per yr.}$$

$$\approx 321 \text{ women/yr.}$$

You Try!

When a certain used car is two years old, it is valued at \$17,378. When it is 3 years old, its value has gone down to \$16,157. What is the rate of change of the price of this used car?

$$\frac{17,378 - 16,157}{2 - 3} = \frac{1221}{-1} = -1221 \text{ \$ / yr.}$$

WARM-UP

*x-val = sec.
y = miles*

A rocket is 1 mile above the earth in 30 seconds and 5 miles above the earth in 150 seconds. What is the rocket's rate of change in miles per second?

mi	5	1	mi
sec	150	30	sec

= $\frac{\text{change } y}{\text{change } x}$

(150, 5) (30, 1)
x' y x' y

$$= \frac{4}{120} = \frac{1}{30} = .03 \text{ mi/sec}$$

$$\frac{\text{change } y}{\text{change } x} = \frac{(75-67)}{4} = \frac{8}{4} = 2 \text{ chimps/yr.}$$

In the last 4 years, the # of chimps has increased from 67 to 75