

name:

Unit 4 - Day 10 - Homework (Applications)



Is it Spring Training yet?

1. Luke loves collecting baseball cards. He wants to keep track of his collection. He notices that after 60 days, he has 120 baseball cards. After 100 days, he has 250 baseball cards.

a. Write an equation in Point-Slope form that represents this situation.

$$\begin{matrix} (60, 120) \\ (100, 250) \end{matrix} \quad m = \frac{250 - 120}{100 - 60} = \frac{130}{40} = \frac{13}{4}$$

$$y - 120 = \frac{13}{4}(x - 60)$$

$$y - 250 = \frac{13}{4}(x - 100)$$

b. Define your variables.

x = # of days

y = # of baseball cards

c. Convert your equation to slope-intercept form.

$$y - 120 = \frac{13}{4}(x - 60)$$

$$y - 120 = \frac{13}{4}x - 195$$

$$y = \frac{13}{4}x - 75$$

e. How many baseball cards will Luke have in 40 days?

$$x = 40 \text{ days}$$

$$y = \frac{13}{4}(40) - 75$$

55 cards

d. What does your slope represent?

$$m = \frac{13}{4}$$

you gain 13 cards every 4 days

f. After how many days would Luke have 500 baseball cards?

$$y = \frac{13}{4}x - 75$$

$$500 = \frac{13}{4}x - 75$$

+75 +75

$$\frac{4}{13} \cdot 575 = \frac{13}{4}x \cdot \frac{4}{13}$$

$$176.9 = x$$

about 177 days

2.