Writing Equations Word Problems

1. Marissa is baking a recipe that calls for her to turn down the temperature on her oven for part of the baking time. Write an equation to represent the situation if the temperature in her oven drops 25°F every 30 seconds, and after 2 minutes the temperature is 350°F.

2 min = 120 sec

$y = mx + b$

$350 = \frac{-5}{6}(120) + b$

Slope: $\frac{\text{Temp}}{\text{seconds}} = \frac{-25}{30} = \frac{-5}{6} = m$ (120, 350)

$350 = -100 + b$

$+100 \quad +100$

$b = 450$

$y = -5/6\,x + 450$

2. The total monthly cost of Javier's cable bill increases by $4.99 per movie he purchases. Select an equation to represent the situation, if after watching 3 movies in a month Javier's cable bill is $93.97.

Slope: 4.99 (3, 93.97)

$y = 4.99x + 79$

$4.99 \times 3 = 14.97$

$93.97 - 14.97 = 79$

3. The number of students enrolled in public high schools in the United States has risen slightly since 2010. Write an equation that could be used to predict the number of students enrolled in public high schools if enrollment continues to grow at the same rate.

Year	Students (In thousands)
2011	14,749
2012	14,753
2013	14,754
2014	14,826
2015	14,912

4, 1, 72, 86

Not Linear

Writing Equations Word Problems

4. Nadia's book club is ordering new novels. She knows that the total cost of 5 books is $61.25, and 15 books cost $159.75. Write an equation in point-slope form to represent the total cost y of ordering x books.

(5, 61.25) (15, 159.75)

$\frac{\Delta y}{\Delta x} = \frac{98.5}{10} \xrightarrow{\times 2} \frac{197}{20}$

$y - y_1 = m(x - x_1)$

$y - 61.25 = \frac{197}{20}(x - 5)$

Dollars	125	135	150
Euros	99.75	108.69	122.10

8.94 13.41

5. During a trip to Belgium, Jerome and a few of his friends exchanged their dollars for Euros at a bank. The table shows how many Euros each person received after paying the bank's fee. Write an equation in point-slope form to represent this situation.

$y - y_1 = m(x - x_1)$

$y - 99.75 = 0.894(x - 125)$