

Algebra 1A

Lesson 5.7

Predict with Linear Models

Warm-Up

For each function, evaluate $f(-2)$, $f(0)$ and $f(4)$.

(a) $f(x) = 3x + 5$

(b) $f(x) = -2x - 1$

(c) $f(x) = -\frac{1}{2}x + 3$

$f(-2)$ _____

$f(-2)$ _____

$f(-2)$ _____

$f(0)$ _____

$f(0)$ _____

$f(0)$ _____

$f(4)$ _____

$f(4)$ _____

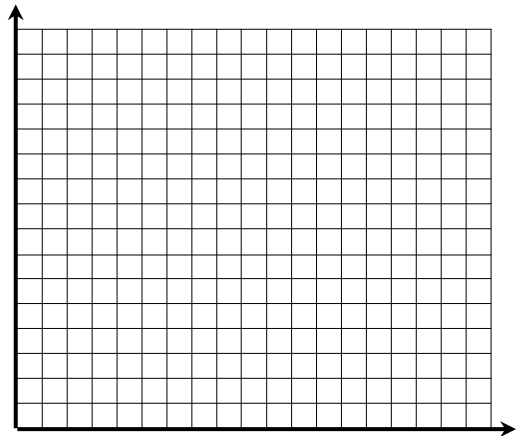
$f(4)$ _____

Example 1. Using an Equation to Predict

The table provided shows the median floor area for a new home built in the United States during the years from 1995-1999.

Year	1995	1996	1997	1998	1999
Median Area	1920	1950	1975	2000	2028

- (a) Make a scatter plot of the data provided.
- (b) Determine an equation for the line of best fit as a function of the number of years after 1995 (let $x = 0$ represent 1995).

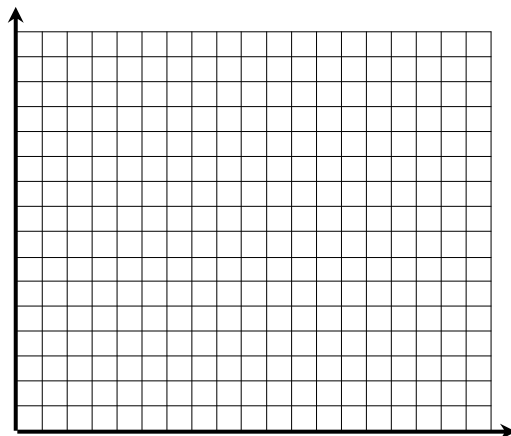


- (c) Use your equation from part (b) to predict the median home value in the year 2000 and the year 2001.

Example 2. Predict Using an Equation

The table shows the number of rentals at a video store from 1998 to 2002.

Year	1998	1999	2000	2001	2002
Video Rentals (thousands)	2.6	2.3	2.0	1.8	1.4



- (a) Make a scatter plot of the data provided.
- (b) Find an equation of the line of best fit as a function of the number of years since 1998 (let $x = 0$ represent 1998).

- (c) Use your equation from part (b) to approximate the year in which you would expect the number of video rentals to reach 1 thousand.

Zero of a Function

A zero of a function is the x -value for which the function will equal 0 (or $f(x) = 0$ or $y = 0$).

Example 3. Finding the Zero of a Function

Looking back at your equation from Example 2, find the approximate year that the model predicts there will be no video rentals ($y = 0$).

Assignment

New: Pg. 338 #4, 6, 7-14, 19