4-5 through 4-7 Review
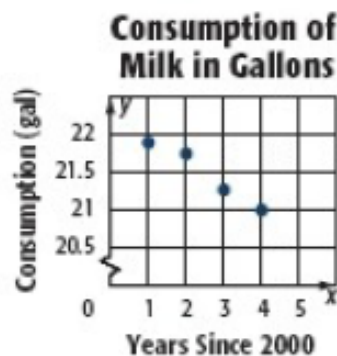
4-5 Scatterplots

1. Refer to the scatter plot of gallons of milk consumption per person for selected years.

Consumption of Milk in Gallons

a. Use the points (2, 21.75) and (4, 21) to write the slope-intercept form of an equation for the line of fit.

b. Predict the milk consumption in 2025.

c. Is it reasonable to use the equation to estimate the consumption of milk for any year? Explain.

4-6 Linear Regression

Write the line of best fit using the stat function on your calculator (or Desmos). Identify the correlation coefficient and explain if the equation is a good model for the data.

2.

Year	2006	2007	2008	2009	2010
Turtles Hatched	21	17	16	16	14

3. POPULATION Detroit, Michigan, like a number of large cities, is losing population every year. Below is a table showing the population of Detroit each decade.

Year	1960	1970	1980	1990	2000
Population (millions)	1.67	1.51	1.20	1.03	0.95

Source: U.S. Census Bureau

a. Find an equation for the regression line.

b. Find the correlation coefficient and explain the meaning of its sign.

c. Estimate the population of Detroit in 2008.

4. FARMING Some crops, such as barley, are very sensitive to how acidic the soil is. To determine the ideal level of acidity, a farmer measured how many bushels of barley he harvests in different fields with varying acidity levels.

Soil Acidity (pH)	5.7	6.2	6.6	6.8	7.1
Bushels Harvested	3	20	48	61	73

a. Find an equation for the regression line.

b. According to the equation, how many bushels would the farmer harvest if the soil had a pH of 10?

c. Is this a reasonable prediction? Explain.

4-7 Inverse Functions

Write the inverse for each of the following functions. Remember to use inverse function notation.

5. $p(x) = 4x - 8$.

6. $f(x) = \frac{2}{3}x + 2$.

7. $f(x) = 3x - 12$

8. $g(x) = -\frac{3}{4}x + 6$

Use composition to determine if the given functions are inverses of one another.

9. $g(x) = 3x - 6$

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

10. $f(x) = \frac{1}{4}x - 4$

$g(x) = 4x + 8$