

Practice 2-4

Using Linear Models

Write an equation for each line.

1. y -intercept of -2.1 , x -intercept of 3.5
2. through $(1.2, 5.1)$, x -intercept of 3.7

For each situation, find a linear model and use it to make a prediction.

3. The cost of producing 4 units is \$204.80. The cost of producing 8 units is \$209.60. How much does it cost to produce 12 units?
4. There were 174 words typed in 3 minutes. There were 348 words typed in 6 minutes. How many words will be typed in 8 minutes?
5. After 5 months the number of subscribers to a newspaper was 5730. After 7 months the number of subscribers to the newspaper was 6022. How many subscribers to the newspaper will there be after 10 months?

Graph each set of data. Decide whether a linear model is reasonable. If so, draw a trend line and write its equation.

6. $\{(1, 2.1), (3, 3.1), (5, 4.0), (7, 5.2), (9, 5.9)\}$
7. $\{(2, 3.5), (4, 4.9), (6, 6.3), (8, 4.6), (10, 2.9)\}$
8. $\{(-2, -3.9), (-1, -1.8), (0, 0.1), (1, 1.9), (2, 3.8)\}$
9. $\{(0.3, 0), (0.8, 3), (1.1, 5), (2.0, 6), (2.5, 6)\}$
10. The table shows the percentage of the population not covered by health insurance in selected states for the years 1990 and 1999.

State	Idaho	Illinois	Michigan	Montana	New York
1990	15.1	10.9	9.4	14.0	12.1
1999	19.1	14.1	11.2	18.6	16.4

Source: *The World Almanac and Book of Facts, 2001*

- a. Draw a scatter plot showing the relationship between the percentage not covered by health insurance in 1990 and the percentage not covered in 1999. Use the 1990 percentage as the independent variable.
- b. Use your scatter plot to develop a model relating the 1990 percentage to the 1999 percentage.
- c. In Wyoming, 12.5% of the population were not covered by health insurance in 1990. Use your model to estimate the percentage who were not covered in 1999.
- d. The actual percentage for Wyoming in 1999 was 16.1. Is your model reasonable?