Solution

The slope is the coefficient of the variable x in the regression equation. Therefore, the slope is 0.697. Notice that the slope is positive, which indicates a positive relationship between the hours spent on homework and the grades on the first test. For every 1 hour increase in time spent on homework, the grade on the first test increases by 0.697 points.

11.R.4 Exercises

Practice

Find the slope of the line determined by each pair of points.

1. $(1, -2); (1, 4)$

2. $(-3, 7); (4, -1)$

Determine whether the equation $x = -3$ represents a horizontal line or a vertical line and give its slope.

3. $x = -3$

Write each equation in slope-intercept form. Find the slope and y-intercept, and then use them to draw the graph.

4. $y = 2x - 1$

5. $3y - 9 = 0$

Find an equation in slope-intercept form for the line passing through (0,3) with the slope $m = -\frac{1}{2}$.

6. $(0, 3)$; $m = -\frac{1}{2}$

Applications

Solve.

7. John bought his new car for $35,000 in the year 2014. He knows that the value of his car has depreciated linearly. If the value of the car in 2017 was $23,000, what was the annual rate of depreciation of his car? Show this information on a graph. (When graphing, use years as the *x*-coordinates and the corresponding values of the car as the *y*-coordinates.)

8. The number of people in the United States with mobile cellular phones was about 198 million in 2011 and about 232 million in 2016. If the growth in the usage of mobile cellular phones was linear, what was the approximate rate of growth per year from 2011 to 2016. Show this information on a graph. (When graphing, use years as the *x*-coordinates and the corresponding numbers of users as the *y*-coordinates.)[1]

1 Source: https://www.statista.com/statistics/231612/number-of-cell-phone-users-usa/

Writing & Thinking

9. a. Explain in your own words why the slope of a horizontal line must be 0.

b. Explain in your own words why the slope of a vertical line must be undefined.