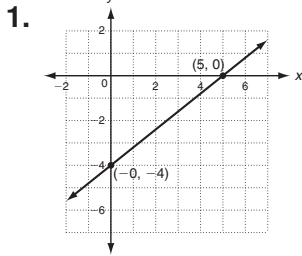


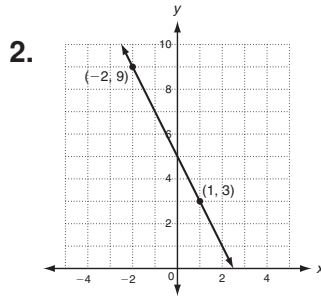
LESSON **Practice B**
5-3 *Rate of Change and Slope*

Find the rise and run between each set of points. Then, write the slope of the line.



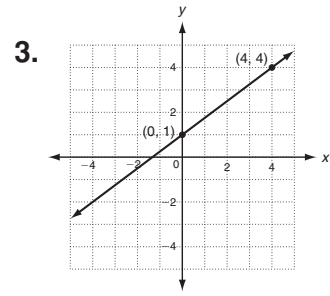
rise = _____ run = _____

slope = _____



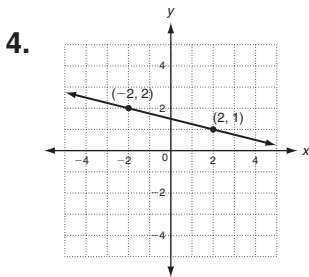
rise = _____ run = _____

slope = _____



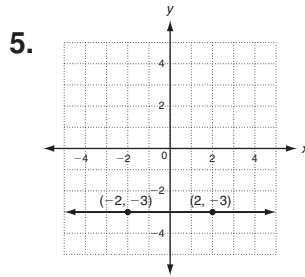
rise = _____ run = _____

slope = _____



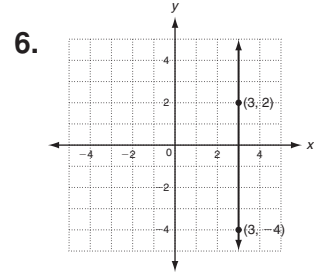
rise = _____ run = _____

slope = _____



rise = _____ run = _____

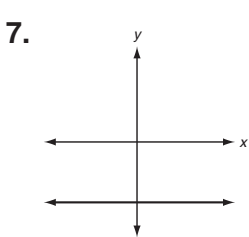
slope = _____

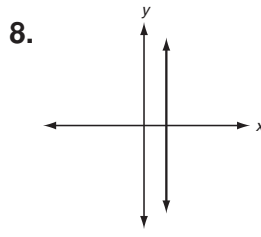


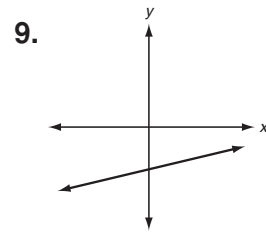
rise = _____ run = _____

slope = _____

Tell whether the slope of each line is positive, negative, zero, or undefined.

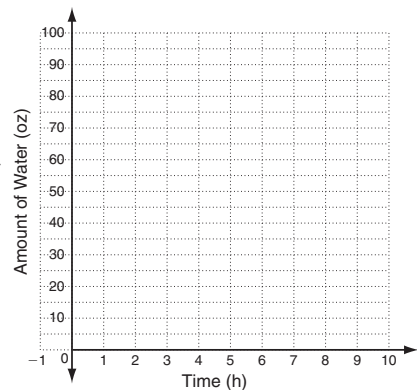






10. The table shows the amount of water in a pitcher at different times. Graph the data and show the rates of change. Between which two hours is the rate of change the greatest? _____

Time (h)	0	1	2	3	4	5	6	7
Amount (oz)	60	50	25	80	65	65	65	50

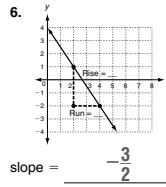
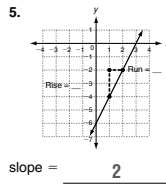
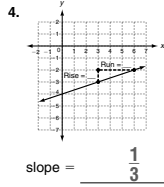


LESSON 5-3 Practice A
Rate of Change and Slope

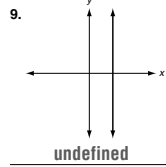
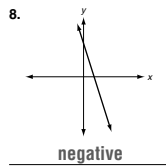
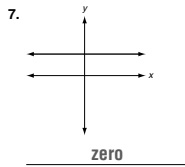
Fill in the blanks to define slope.

- The rise is the difference in the y-values of two points on a line.
- The run is the difference in the x-values of two points on a line.
- The slope of a line is the ratio of rise to run for any two points on the line.

Find the rise and run between each set of points. Then, write the slope of the line.



Tell whether the slope of each line is positive, negative, zero, or undefined.



10. The table shows a truck driver's distance from home during one day's deliveries. Find the rate of change for each time interval.

Time (h)	0	1	4	5	8	10
Distance (mi)	0	35	71	82	199	200

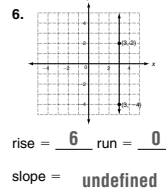
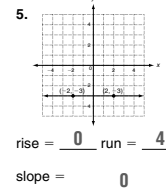
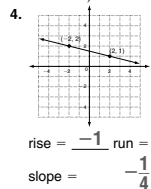
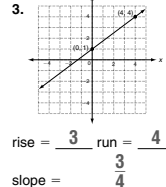
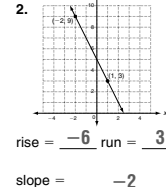
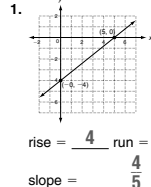
- Hour 0 to Hour 1: $\frac{35 \text{ mi/h}}$ Hour 1 to Hour 4: $\frac{12 \text{ mi/h}}$ Hour 4 to Hour 5: $\frac{11 \text{ mi/h}}$
 Hour 5 to Hour 8: $\frac{39 \text{ mi/h}}$ Hour 8 to Hour 10: $\frac{1 \text{ mi/h}}$

The rate of change represents the average speed. During which time interval was the driver's average speed the least? between hours 8 and 10

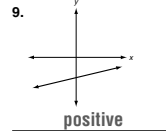
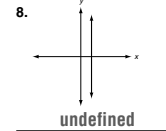
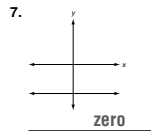
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LESSON 5-3 Practice B
Rate of Change and Slope

Find the rise and run between each set of points. Then, write the slope of the line.

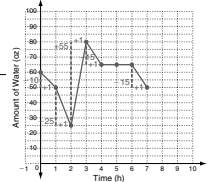


Tell whether the slope of each line is positive, negative, zero, or undefined.



10. The table shows the amount of water in a pitcher at different times. Graph the data and show the rates of change. Between which two hours is the rate of change the greatest? 2 and 3

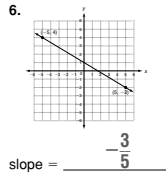
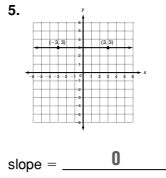
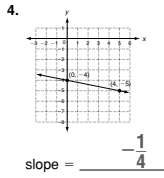
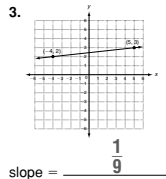
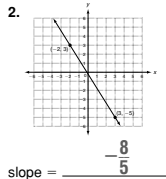
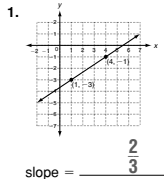
Time (h)	0	1	2	3	4	5	6	7
Amount (oz)	60	50	25	80	65	65	65	50



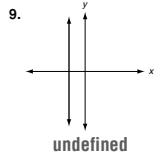
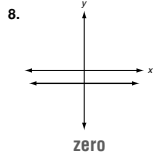
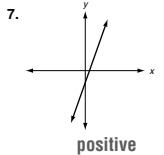
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LESSON 5-3 Practice C
Rate of Change and Slope

Find the slope of each line.



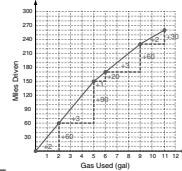
Tell whether the slope of each line is positive, negative, zero, or undefined.



10. The table shows the distance a car drove on one tank of gasoline.

Miles driven	0	60	150	170	230	260
Gas Used (gal)	0	2	5	6	9	11

- Graph the data and show the rates of change.
- The rate of change represents the gas mileage in miles per gallon. Between which two measurements was the car's gas mileage least?



between gallons 5 and 6

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LESSON 5-3 Reteach
Rate of Change and Slope

A **rate of change** is a ratio that compares the amount of change in a dependent variable to the amount of change in an independent variable.

The table shows the average retail price of peanut butter from 1986 to 1997. Find the rate of change in cost for each time interval. During which time interval did the cost increase at the greatest rate?

Year	1986	1987	1989	1992	1997
Cost per lb (\$)	1.60	1.80	1.81	1.94	1.78

Step 1: Identify independent and dependent variables.
Year is independent. Cost is dependent.

Step 2: Find the rates of change.

- 1986 to 1987 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.80 - 1.60}{1987 - 1986} = \frac{0.20}{1} = 0.2$ **greatest rate of change**
- 1987 to 1989 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.81 - 1.80}{1989 - 1987} = \frac{0.01}{2} = 0.005$
- 1989 to 1992 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.94 - 1.81}{1992 - 1989} = \frac{0.13}{3} \approx 0.043$
- 1992 to 1997 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.78 - 1.94}{1997 - 1992} = \frac{-0.16}{5} = -0.032$ **This rate of change is negative. The price went down during this time period.**

The cost increased at the greatest rate from 1986 to 1987.

The table shows the average retail price of cherries from 1986 to 1991. Find the rate of change in cost for each time interval.

Year	1986	1988	1989	1991
Cost per lb (\$)	1.27	1.63	1.15	2.26

- 1986 to 1988 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.63 - 1.27}{1988 - 1986} = \frac{0.36}{2} = 0.18$
- 1988 to 1989 $\frac{\text{change in cost}}{\text{change in years}} = \frac{1.15 - 1.63}{1989 - 1988} = \frac{-0.48}{1} = -0.48$
- 1989 to 1991 $\frac{\text{change in cost}}{\text{change in years}} = \frac{2.26 - 1.15}{1991 - 1989} = \frac{1.11}{2} = 0.555$
- Which time interval showed the greatest rate of change? 1989 to 1991
- Was the rate of change ever negative? If so, when? yes, 1988 to 1989

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