Unit 3 Lesson 2: Rate of Change and Slope

Rate of Change – allows you to see the relationship between two quantities that are changing. If one quantity depends on the other, then the following is true:

Rate of change $=$ ─────────────── $=$ ───────────────

## A. Find the rate of change using a table

1. For the data at the right, is the rate of change for each pair of consecutive days the same?

2. What does the rate of change represent?

3. Find the rate of change using Days 5 and 2.

4. Does finding the rate of change for just one pair of days mean that the rate of change is the same for all the data? Explain.

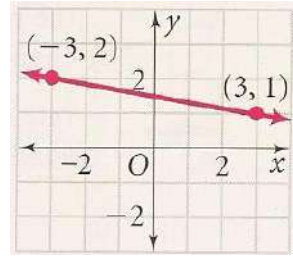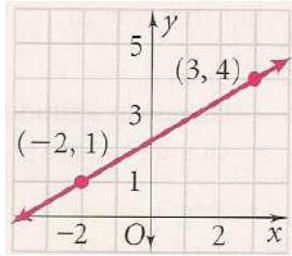| Cost of Renting a Computer	
Number of Days	Rental Charge
1	$60
2	$75
3	$90
4	$105
5	$120
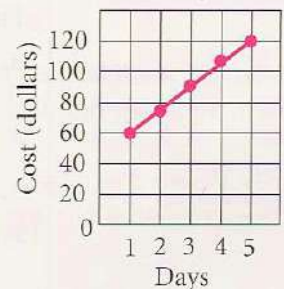
B. Finding Rate of Change Using a Graph

The graph shows the altitude of an airplane as it comes in for a landing. Find the rate of change. Explain what this rate of change means.
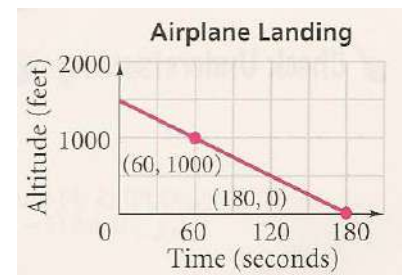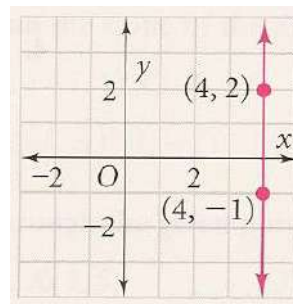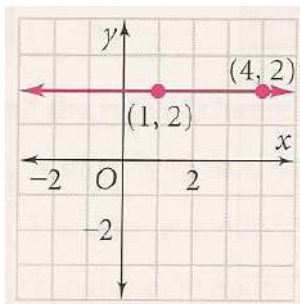
c. Find the slope of each line.

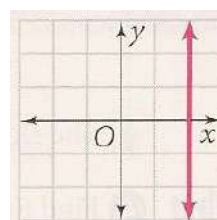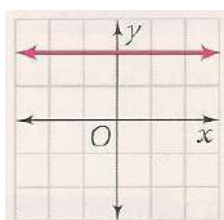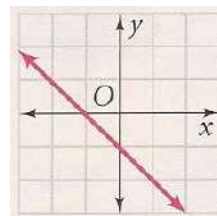| Formula for Slope	$\dfrac{rise}{run} = \dfrac{y_2 - y_1}{x_2 - x_1}$, where $x_2 - x_1 \neq 0$

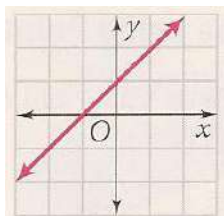## D. Finding Slope Using Points

Find the slope of the line through $A(-2, 1)$ and $B(5, 7)$.

E. Horizontal and Vertical Lines

Find the slope of each line.
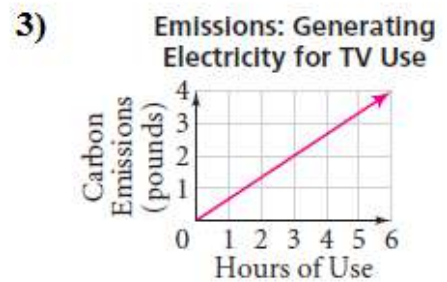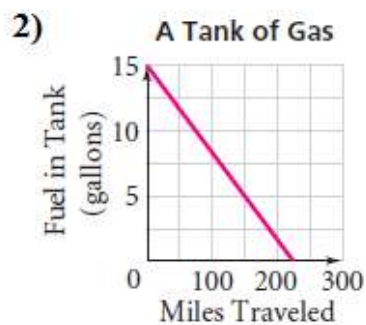

Summary of Slopes
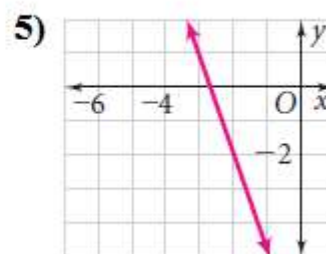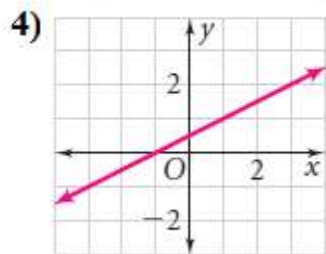
Unit 3 Lesson 3 Practice Problems:

The rate of change is constant in each table and graph. Find the rate of change. Explain what the rate of change means for each situation.

1)

Time (hours)	Temperature (°F)
1	−2
4	7
7	16
10	25
13	34

2) A Tank of Gas

Fuel in Tank (gallons) vs Miles Traveled

3) Emissions: Generating Electricity for TV Use

Carbon Emissions (pounds) vs Hours of Use

Find the slope of each line.

4)

5)

6) $(3, 2), (5, 6)$

7) $(-4, 4), (2, -5)$

8) $(-8, 0), (1, 5)$

9) $(5, 0), (0, 2)$

10) $(3, 4), (-3, 4)$

11) $(4, 3), (4, -3)$

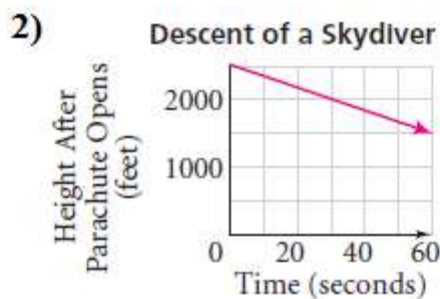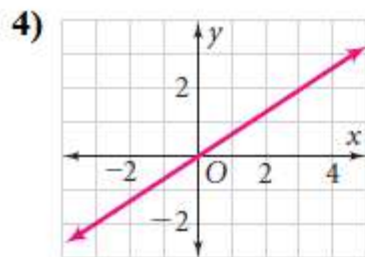**12)** $\left(-5, \frac{1}{2}\right), (-5, 3)$

The rate of change is constant in each table and graph. Find the rate of change.
Explain what the rate of change means for each situation.

1)

People	Cost (dollars)
2	7.90
3	11.85
4	15.80
5	19.75
6	23.70

2) Descent of a Skydiver

3) Price of Oregano

Find the slope of each line.

4)

5) $(5, 6), (3, 2)$

6) $(-2, 1), (1, -2)$

7) $(0, 0), (3, 5)$

8) $(-7, 1), (7, 8)$

9)

10)