

Math 1030 #14a

Linear Modeling

A Linear Function has

- a constant rate of change
- a straight-line graph

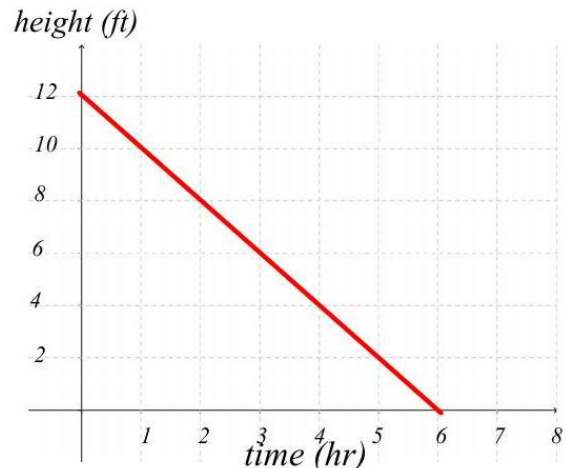
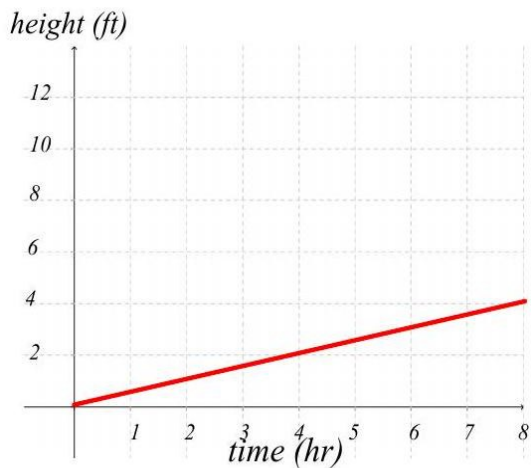
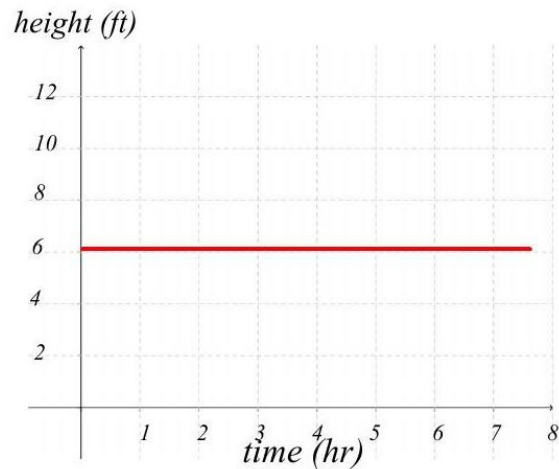
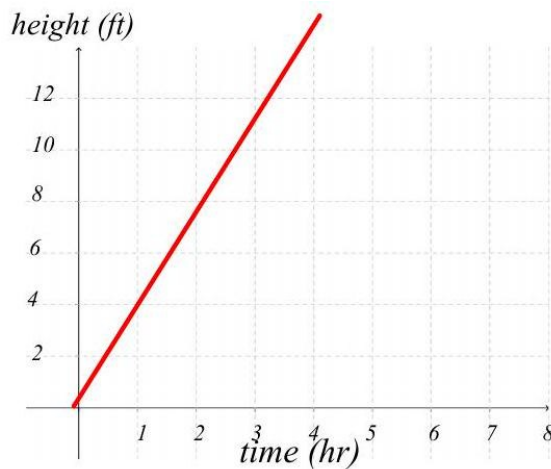
The Slope of the line is the rate of change.

The greater the rate of change, the steeper the slope.

$$\text{rate of change} = \text{slope} = \frac{\text{change in dependent variable}}{\text{change in independent variable}} = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$$

EX 1:

Discuss the slope (rate of change) in each of these graphic examples.



A Price-Demand Function is a good example of slope.

EX 2:

Write a statement that describes how one variable varies with respect to the other. Then answer the questions.

A gas station owner finds for each 2 -cent increase in the price of gasoline, she sells 120 fewer gallons of gas per week.

a) How much more or less will she sell if she raises the price by 10¢ per gallon?

b) What if she decreases the price by 5¢ per gallon?

c) What is the slope (rate of change) in this problem.