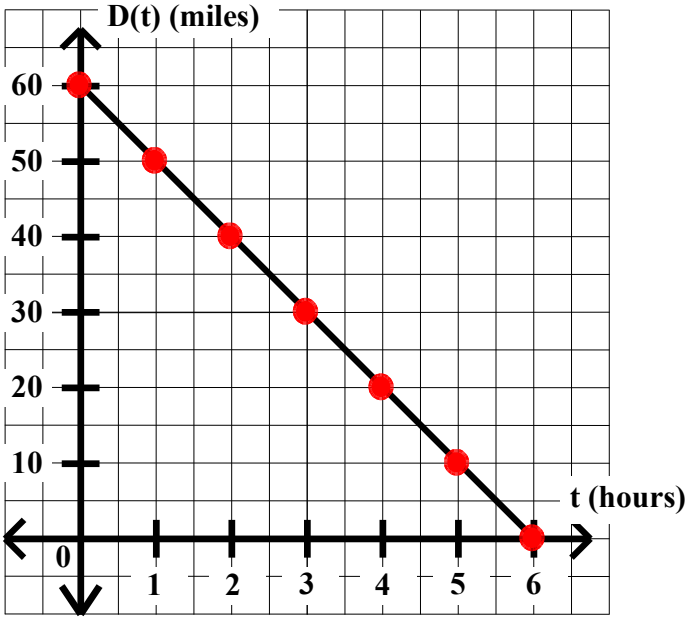
Algebra I Worksheet #7 Unit 8 Selected Solutions

Paradise Island is 60 miles due west of Landmark Bay. A Ferry sails from Landmark Bay to Paradise Island at a constant speed of 10 miles per hour. Let t represent the time in **hours** that the Ferry has been sailing. Let D(t) represent the **distance in miles that the Ferry is from Paradise Island**.

8. Make a table giving t and D(t) every hour from t = 0 until the Ferry reaches Paradise Island.

t hours	D(t) miles
0	60
1	50
2	40
3	30
4	20
5	10
6	0

9. Graph function D.



10. Write an equation giving D(t) in terms of t. **D(t) = -10t + 60**
[y = mx + b] The slope is -10 (miles per hour), because the ferry's distance from Paradise Island decreases by 10 miles each hour. The 'y intercept' is 60 (miles), because the ferry is 60 miles from Paradise Island when t = 0 (hours). It may make more sense to write the function as **D(t) = 60 – 10t**.

11. Write an inequality to describe the domain of function D.

$0 \le t \le 6$

12. Write an inequality to describe the range of function D.

$0 \le D(t) \le 60$

13. Evaluate D(4.5). What does D(4.5) represent in terms of the problem?

D(4.5) = -10(4.5) + 60 = **15 miles**

D(4.5) represents the distance the ferry is from Paradise Island after 4.5 hours. the

14. If D(t) = 35, then find the value of t. Describe what this value of t represents in terms of the problem.

-10t + 60 = 35

-10t = -25

t = 2.5 hours

This represents the time is will take for

ferry to be 35 miles from Paradise Island.