

## Algebra II Worksheet #4 Unit 3 Selected Solutions

Fantasy Island is 32 miles due east of Marine Bay. A Ferry sails from Marine Bay to Fantasy Island at a constant speed of 8 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 Fantasy Island**.

15. Make a table giving  $t$  and  $d(t)$  every hour from  $t = 0$  until the Ferry reaches Fantasy Island.

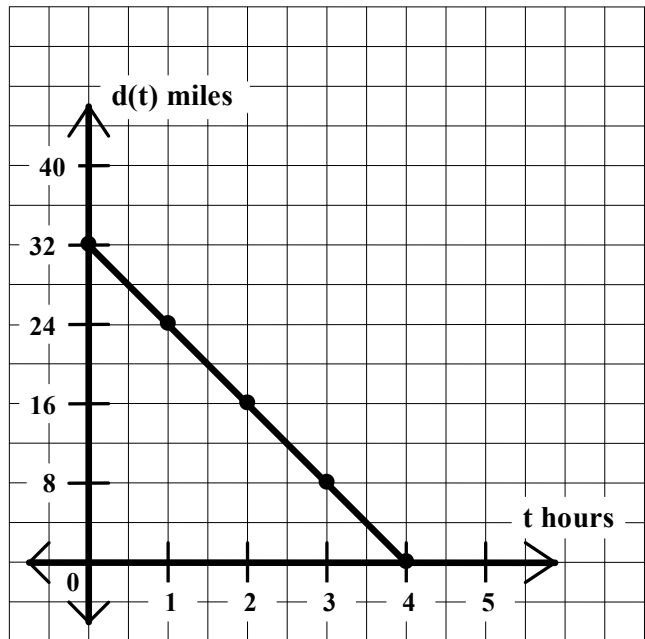
$t$	$d(t)$
0	32
1	24
2	16
3	8
4	0

The distance decreases  
32 miles in 4 hours.

(The ferry is moving  
at 8 miles per hour.)

The slope of the graph is **-8 !!**

16. Graph function  $d$ .



17. Write an equation giving  $d(t)$  in terms of  $t$ .

The slope is -8. The  $y$ -intercept is 32. **' $y = mx + b$ '**

**$d(t) = -8t + 32$**

18. What is the domain of function  $d$ ?

**$[0, 4]$**

19. What is the range of function  $d$ ?

**$[0, 32]$**

20. Evaluate  $d(1.5)$ . What does  $d(1.5)$  represent in terms of the problem?

**$d(1.5) = 20$  miles.  $d(1.5)$  represents the distance the ferry is from Fantasy Island after 1.5 hours of sailing.**

21. If  $d(t) = 12$ , then find the value of  $t$ . Describe what this value of  $t$  represents in terms of the problem.

**$t = 2.5$  hours. This value of  $t$  represents the time it takes for the ferry to be 12 miles from Fantasy Island.**