

Wednesday, January 30, 2013

Agenda:

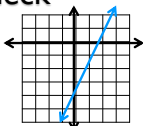
- TISK, No MM
- HW Check
- Lesson 12-5: Linear Functions
- Homework: Ch 12 HW Packet #2, §12-5 problems

TISK Problems

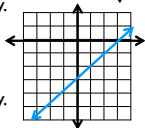
1. Write an equation in slope-intercept form for a line that passes through the points (3, 5) and (0, 1).
2. Find the probability of rolling a multiple of 3 then a multiple of 4 on a fair 12-sided die numbered 1-12.
3. Write and solve a proportion: Thirty is what percent of 40?

Homework Check

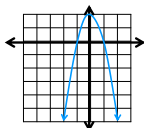
1. Tables may vary.



2. Tables may vary.



3. Tables may vary.



Homework Check

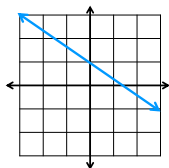
4. No, there is an x in the denominator.
5. Yes, it passes the VLT.
6. Yes, every input has only 1 output.
7. No, the input 6 has two outputs, 1 and 15.
8. $f(0) = 1, f(2) = 19, f(-3) = 64$
9. $f(0) = -1, f(2) = 1, f(-3) = -4$
10. $f(0) = 11, f(2) = 8.5, f(-3) = 80$
11. D: [1,5] R: {1,2} \cup [3,5]
12. D: {-5, -3, 0, 2, 5, 7, 9}
R: {-9, -8, -7, -6, -5, 4, 8}

§12-5 Linear Functions

- One type of function is a **linear** function.
 - Linear functions make straight lines.
 - These are the same lines we studied in chapter 10!
- How can you tell if a function is linear?
 - Is it a function?
 - Does its graph make a straight line?
 - Then it's a linear function!
 - Can its formula be written as $f(x) = mx + b$?
 - Then it's a linear function!

§12-5 Linear Functions

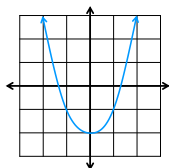
- Is the relation a linear function?



Yes, it makes a line.

§12-5 Linear Functions

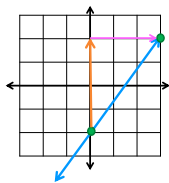
- Is the relation a linear function?



No, it doesn't make a line.

§12-5 Linear Functions

- Is the relation a linear function?



Yes, it makes a straight line.

What could be the rule for that line?

$$f(x) = mx + b$$

$$m = \frac{4}{3} \quad b = -2$$

$$f(x) = \frac{4}{3}x - 2$$

§12-5 Linear Functions

- Write a rule for the function.



What could be the rule for that line?

$$f(x) = mx + b$$

$$m = \frac{-2}{6} \quad b = 1$$

$$f(x) = -\frac{1}{3}x + 1$$

§12-5 Linear Functions

- Write a rule for the function.

x	y
-2	8
1	17
2	20
10	44

These are all ordered pairs.

Then we can solve this by using any two points and point-slope form.

$$f(x) = mx + b$$

$$y - y_1 = m(x - x_1)$$

$$(1, 17) = (x_1, y_1)$$

$$y - 17 = 3(x - 1)$$

$$(2, 20) = (x_2, y_2)$$

$$y - 17 = 3x - 3$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{20 - 17}{2 - 1} = \frac{3}{1} = 3$$

$$f(x) = 3x + 14$$
