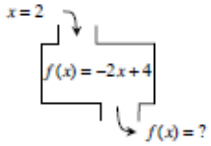
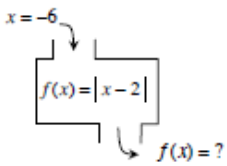
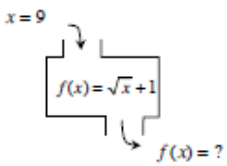
Unit 2 Test Review Name: _____ #:_____ Per: _____

Below is a review for your test! Do your best work and read all directions--especially on second page. If you do not follow precisely, you will not get credit for this assignment. You are preparing for your test--work hard and purposefully!

Determine the outputs for the following relations and the given inputs.

1. 

2. 

3. 

4. $f(x) = (5-x)^2$, $f(8) = ?$

5. $g(x) = x^2 - 5$, $g(-3) = ?$

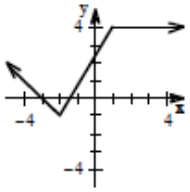
6. $f(x) = \frac{2x+7}{x^2-9}$, $f(3) = ?$

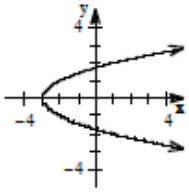
7. $h(x) = 5 - \sqrt{x}$, $h(9) = ?$

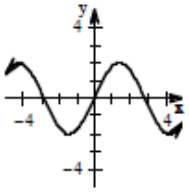
8. $h(x) = \sqrt{5-x}$, $h(9) = ?$

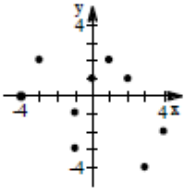
9. $f(x) = -x^2$, $f(4) = ?$

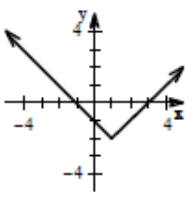
Determine if each relation is a function. Then state its domain and range.

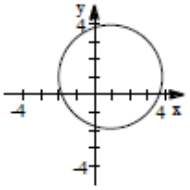
10. 

11. 

12. 

13. 

14. 

15. 

Identify the slope in each equation. State whether the graph of the line is steeper or flatter than $y = x$ or $y = -x$, whether it goes up or down from left to right, or if it is horizontal or vertical.

4. $y = 3x + 2$

5. $y = -\frac{1}{2}x + 4$

6. $y = \frac{1}{3}x - 4$

7. $4x - 3 = y$

8. $y = -2 + \frac{1}{2}x$

9. $3 + 2y = 8x$

10. $y = 2$

11. $x = 5$

12. $6x + 3y = 8$

Without graphing, find the slope of each line based on the given information.

13. $\Delta y = 27$ $\Delta x = -8$

14. $\Delta x = 15$ $\Delta y = 3$

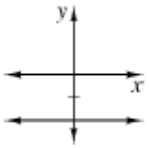
15. $\Delta y = 7$ $\Delta x = 0$

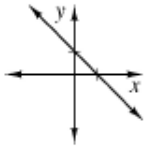
16. Horizontal $\Delta = 6$
Vertical $\Delta = 0$

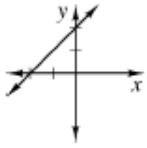
17. Between (5, 28) and (64, 12)

18. Between (–3, 2) and (5, -7)

Is the slope of each line negative, positive, or zero?

1. 

2. 

3. 

How to find the equation of a line given the slope and a point or two points (without graphing!)

Step 1: Find the slope if it is not given (Refer to your notes! Watch the videos on our website! It is crucial that you can do this and do this efficiently! There will be many problems of these types on your test!) Use the method you prefer so that you can learn to do it right every time.

If you're given two points (x_1, y_1) and (x_2, y_2)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

OR, use Tiny Table and then substitute into the slope formula:

$$\text{slope} = \frac{\Delta y}{\Delta x}$$

Look at $\frac{\text{rise}}{\text{run}}$ as $\frac{\text{the change in the y's}}{\text{the change in the x's}}$

Step 2: Once you find the slope (or if it is already given), follow the next steps.

Write the general equation of a line.	$y = mx + b$
Substitute the values we know: m, x, and y. Since the lines are parallel, the slopes are equal.	$8 = 3(2) + b$
Solve for b.	$8 = 6 + b$ $2 = b$
Write the complete equation.	$y = 3x + 2$

EVERY PROBLEM you see that asks you to find the equation of a line given a point and the slope or two points must be found in this way--using all the steps above! (find, slope, find y-intercept, rewrite equation!)

Some of you have discovered point-slope form (that is fine to use if you know it!) but many of you are skipping steps (or simply copying the equations from your friends on the Thanksgiving packet. Oh yes. I know. We are going to talk about it.)

Do each of the problems below on **a separate sheet of paper** that you can attach to this and turn in for a grade. You will not receive credit if you work out and write the problems below on this sheet of paper. You will also not receive credit if I do not see **EVERY** step outlined above for **EACH** problem. I should see a lot of work! Your work should support your answer. You are preparing for your test! Make your time worthwhile!

Write the equation of the line with the given slope that passes through the given point.

1. slope = 5, 3, 13)
2. slope = $-\frac{5}{3}$, (3, –1)
3. slope = –4, (–2, 9)
4. slope = $\frac{3}{2}$, (6, 8)
5. slope = 3, (–7, –23)
6. slope = 2, $(\frac{5}{2}, -2)$

*Problem 1, slope is 5, the point is (3, 13)

Write the equation of the line *parallel* to the given line that goes through the given point.

7. $y = \frac{3}{5}x + 2$ (0, 0)
8. $y = 4x - 1$ (–2, –6)
9. $y = -2x + 5$ (–4, –2)
10. $y = 4x + 5$ (–6, –28)
11. $y = \frac{1}{3}x - 1$ (6, 9)
12. $y = 3x + 8$ $(0, \frac{1}{2})$

Write the equation of the line containing each pair of points.

1. (1, 1) and (0, 4)
2. (5, 4) and (1, 1)
3. (1, 3) and (–5, –15)
4. (–2, 3) and (3, 5)
5. (2, –1) and (3, –3)
6. (4, 5) and (–2, –4)
7. (1, –4) and (–2, 5)
8. (–3, –2) and (5, –2)
9. (–4, 1) and (5, –2)