Math 1111 Sample Test 2 Name _____

2.1 – 2.6 Date _____

Directions: To receive partial credit you must show your work on a problem.
Circle final answers. All problems are 5 points each.

1. Find the slope of the line passing through (4.8, 3.1) and (–5.2, 1.6).

2. Write the equation of the line in slope-intercept form ($y = mx + b$) that goes through (1, 1) and $\left(6, -\frac{2}{3}\right)$.

3. Find the slope-intercept form of the equation of the line passing through (–10,4) and has slope $m = 0$.

4. Write the equation of the line in slope-intercept form ($y = mx + b$) that goes through (2, 1) and is perpendicular to $4x - 2y = 3$.

5. Is the following relation a function ?

   $\{(1,2),(5,7),(3,8),(5,4)\}$

6. Evaluate the function at each specified value and simplify. $f(x) = \sqrt{x+8} + 2$

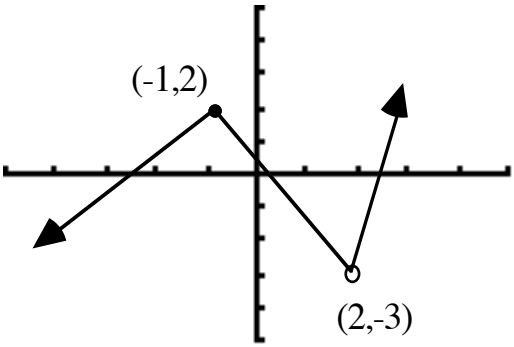
   a) $f(-8)$ b) $f(1)$

7. Evaluate the function at each specified value and simplify. $f(x) = \frac{3x-4}{5}$

   a) $f(2)$ b) $f(-3)$

8. State the Domain for the following:
   (Hint: draw graph first.)
   $g(x) = \sqrt{x-10}$

9. Determine the intervals of the domain over which the given functions is increasing, decreasing, and constant.

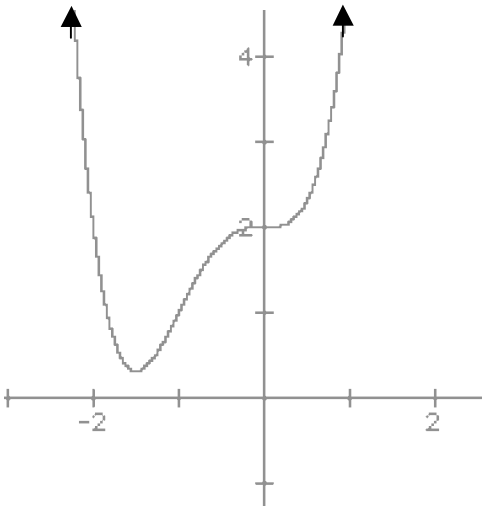


Increasing _____

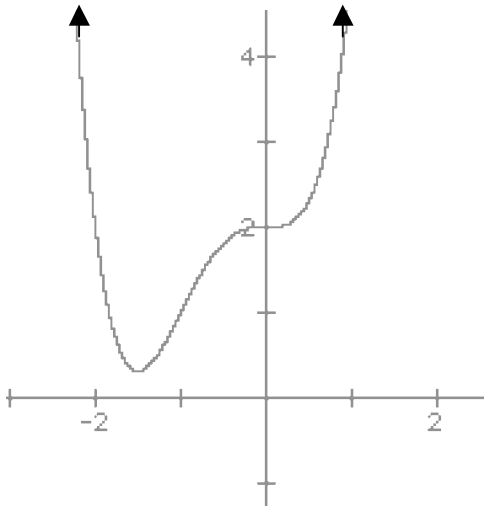
Decreasing _____

Constant _____

10. Is the following graph a function ? Yes or No



11. State the Domain and Range for the following graph:



Domain = _____ Range = _____

12. Write an equation for the function that is described as follows:

The shape of f(x) = | x | but moved 10 units up and reflected over the x-axis.

Answer: _____

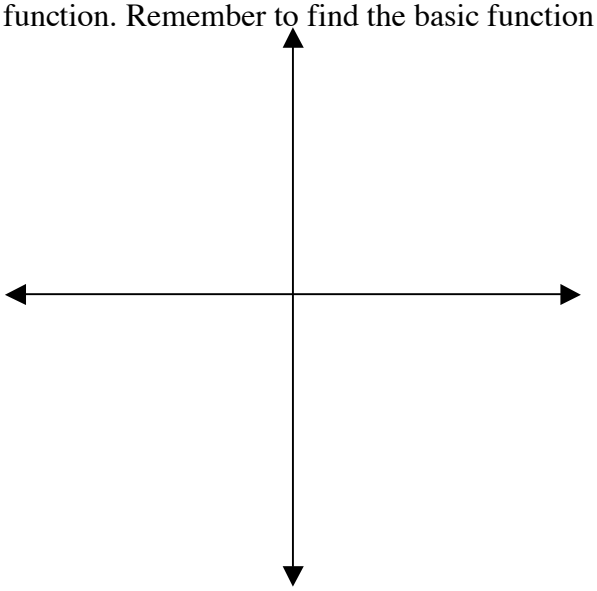
13. Write an equation for the function that is described as follows:

The shape of $f(x) = x^3$ but moved 6 units to the left, and 6 units down.

Answer: _____

14. Describe the transformation that occurs in the function. Remember to find the basic function first. Also sketch the graph.

$f(x) = (x-1)^3 + 2$



Description:

_____
_____
_____
_____

For $f(x) = x^2$ and $g(x) = 2 - x$ Find the following:

15. $(f + g)(x)$

16. $(f - g)(x)$

17. $(f \bullet g)(x)$

18. $(f / g)(x)$

For $f(x) = x^2 + 1$ and $g(x) = x - 4$ Find the following:

19. $(f \bullet g)(6)$

20. $(f + g)(2)$

For $f(x) = \frac{1}{3}x - 3$ and $g(x) = 3x + 1$ Find the following:

21. $(f \circ g)(x)$

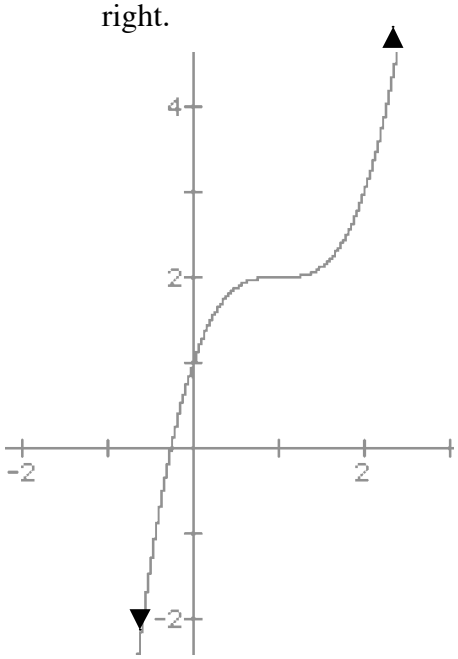
22 . $(g \circ f)(12)$

23. $(f \circ f)(x)$

24 . $(g \circ g)(2)$

Answers to Sample Test 2

1. m = 0.15	2. $y = \frac{-1}{3}x + \frac{4}{3}$
3. y = 4	4. $y = \frac{-1}{2}x + 2$

5. NO the 5's repeat !	6. a) 2 b) 5
7. a) 2/5 b) –13/5	8. $[10,\infty)$
9. Inc.= $(-\infty,-1]$ and $(2,\infty)$ Decr. = [–1,2) Const = None	10. Yes
11. Domain = $(-\infty,\infty)$ Range = $[0.5,\infty)$	12. f(x) = –| x | – 10
13. $f(x) = (x+6)^3 - 6$ 15. $f(x) = x^2 - x + 2$ 16. $f(x) = x^2 + x - 2$ 17. $f(x) = x^2(2-x) = 2x^2 - x^3$ 18. $f(x) = \frac{x^2}{2-x}$ 19. 74 20. 3 21. $(f \circ g)(x) = x - \frac{8}{3}$ 22. 4 23. $(f \circ f)(x) = \frac{1}{9}x - 4$ 24. 22	14. Vertical shift of $f(x) = x^3$ 2 units upward and horizontal shift of 1 unit to the right. 
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