Math 1111   Sample Test 3   Name _____

Sections 1.7, 1.8, 2.1-2.4   Date _____

Version A

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

Determine whether the given value of x is a solution of the inequality. (#1) yes or no

1. $-1 < \dfrac{3-x}{2} \le 1$ $(x = -5)$

Solve the following inequality. Write the solution set in <u>interval notation</u>. (#2)

2. $3 + \dfrac{2}{7}x > x - 2$

Solve the following inequality. Write the solution set in <u>interval notation</u>. (#3)

3. $\left| 1 - \dfrac{2x}{3} \right| < 1$

Determine whether the given value of x is a solution of the inequality. (#4) yes or no.

4. $x^2 - x - 12 \ge 0$ $(x = -4)$

Solve the following inequality. Write the solution set in <u>interval notation</u>. (#5)

5. $x^2 + 2x \ge 3$

Solve the following inequality. Write the solution set in <u>interval notation</u>. (#6)

6. $x^3 - 2x^2 - 9x - 2 \le -20$

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

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

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

10. 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.

11. Is the following relation a function ?

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

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

a) f(–8)   b)   f(1)

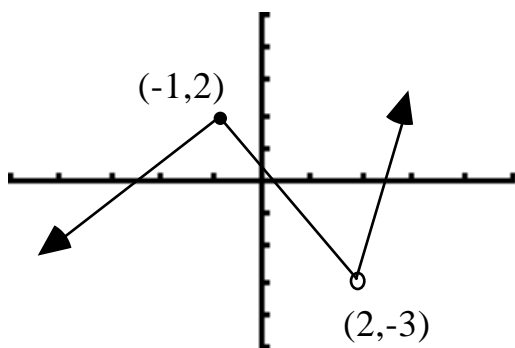13. Find all real values of x such that f(x) = 0.

$$f(x) = \frac{3x - 4}{5}$$

14. State the Domain for the following:

$$g(y) = \sqrt{y - 10}$$

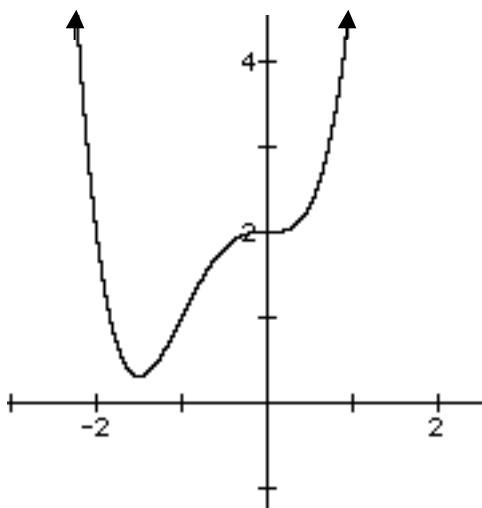15. Determine the intervals of the domain over which the given functions is increasing, decreasing, and constant.
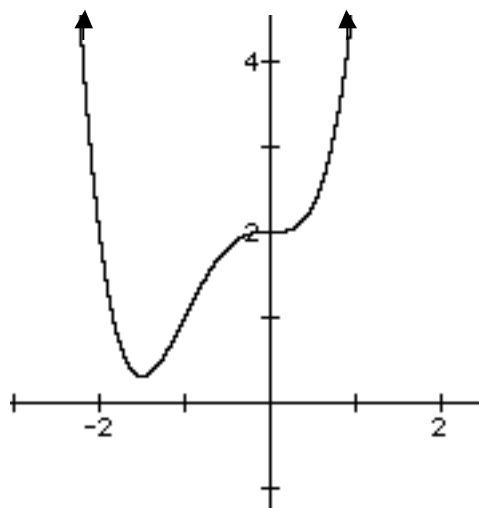

(-1,2)

(2,-3)

Increasing _____

Decreasing _____

Constant _____

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

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

Domain = _____   Range = _____

18. 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.

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

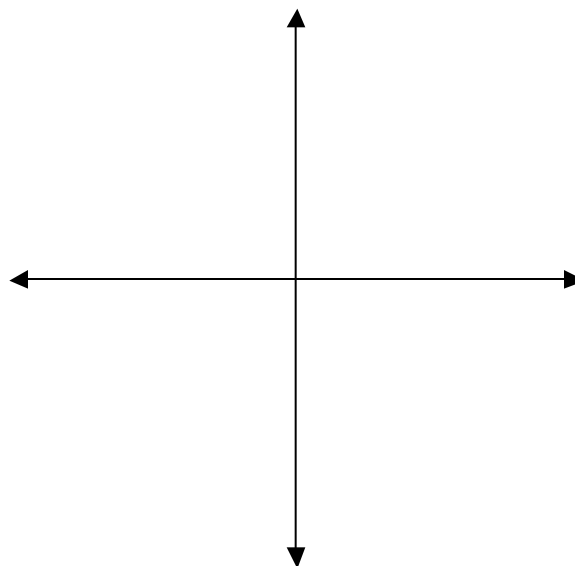The shape of $f(x) = x^3$ but moved 6 units to the left, and 6 units down.

Answer: _____

Answer: _____

20. 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:

Answers to Sample Test 3

1.	NO	2.	$(-oo, 7)$
3.	$(0,3)$	4.	Yes
5.	$[-3,1]$	6.	$[-3,2] \cup [3, oo)$
7.	$m = 0.15$	8.	$y = \dfrac{-1}{3}x + \dfrac{4}{3}$
9.	$y = 4$	10.	$y = \dfrac{-1}{2}x + 2$
11.	NO the 5's repeat !	12.	a) 2 b) 5
13.	$x = 4/3$	14.	y 10
15.	Inc.= $(-oo,-1]$ and $(2, oo)$ Decr. $= [-1,2)$ Const $=$ None	16.	Yes
17.	Domain $= (-oo,oo)$ Range $= [0.5, oo)$	18.	$f(x) = -|x| - 10$
19.	$f(x) = (x + 6)^3 - 6$	20.	Vertical shift of $f(x) = x^3$ 2 units upward and horizontal shift of 1 unit to the right.