Name: _____

2.REV.2 – END OF CHAPTER REVIEW

Past due on: _____ Period: _____

True or false? If false, explain your reasoning.

1. If $f(t) = 3t^2 - 4$, then $f(2) = 0$.

2. If $f(t) = t^2 + 64$, then $f(0) = 64$.

3. The domain of a function is the set of input values.

4. The domain of $f(x) = \dfrac{4}{x-3}$ consists of all real numbers x, $x \neq 0$.

5. If $g(x) = \sqrt{2-x}$, the domain of g consists of a real numbers $x \geq 2$.

6. If $h(x) = \dfrac{2}{5}x + 6$ and its domain is $15 \leq x \leq 20$, then the range of h is $12 \leq h(x) \leq 14$.

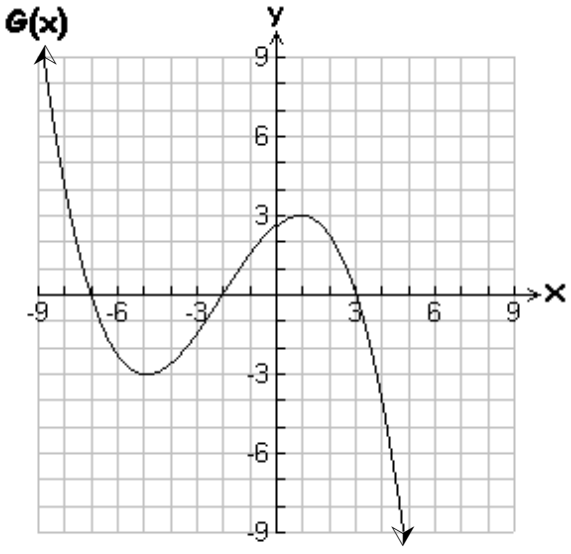
7. If $f(3) = 5$ and f is invertible, then $f^{-1}(3) = {}^{1}/_{5}$.

8. If $h(7) = 4$ and h is invertible, then $h^{-1}(4) = 7$.

9. If $f(x) = \dfrac{3}{4}x - 6$ then $f^{-1}(8) = 0$.

10. The functions $f(x) = 2x + 1$ and $g(x) = 0.5x - 1$ are inverses.

Problems 11 – 18: Use the graph of $G(x)$.



11. Evaluate $G(-5)$.

12. Solve $G(x) = 0$.

13. There is a minimum of _____ at $x =$ _____.

14. There is a maximum of _____ at $x =$ _____.

15. $G(x)$ is invertible on the interval $[1, \infty)$. Find $G^{-1}(?) = 2$.

16. $G(x)$ is invertible on the interval $(-\infty, -5]$. Find $G^{-1}(4) = ?$.

17. On what interval is $G(x)$ decreasing and concave up?

18. What is the concavity when $x > 1$?

Algebraically find the domain of the function.

19. $d(x) = \dfrac{x-3}{x+6}$

20. $O(x) = \dfrac{3x+1}{4x+2}$

21. $m(x) = \dfrac{2}{x^2-9}$

22. $A(x) = 3\sqrt{x+3}$

23. $I(x) = \sqrt{6-2x}$

24. $n(x) = 5 + \sqrt{2x-10}$

25. Given the function $J = f(s) = \dfrac{6}{3s+2}$

a. Find the inverse function, $f^{-1}(J)$.

b. Use the inverse function to identify the range of J.

26. Let $f(x) = x^2 - 1$ & $g(x) = 2x - 3$.

a. Find $f\big(g(x)\big)$.

b. Find $g\big(f(x)\big)$.

c. Find $f\big(g(3)\big)$.

d. Find $g\big(f(-2)\big)$.

e. Find $g^{-1}(2)$.

f. Find $g^{-1}(?) = 9$.

27. f and g are defined by the following tables. Use the tables to evaluate each composite function.

a. $f(g(1))$

b. $f(g(4))$

c. $g(f(-1))$

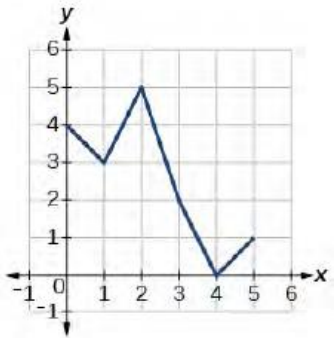
d. $g(f(0))$

x	$f(x)$
-1	1
0	4
1	5
2	-1

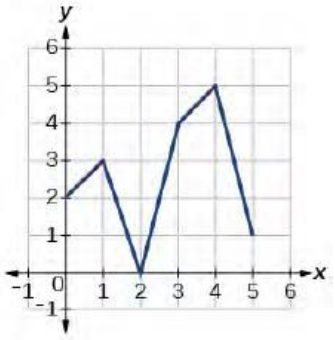
x	$g(x)$
-1	0
1	1
4	2
10	-1

28. The functions p and q are defined by the following graphs. Evaluate the indicated function.

$p(x)$



$q(x)$



a. $p(q(3))$

b. $p(q(4))$

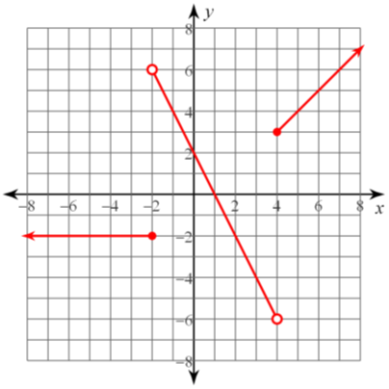
c. $q(p(1))$

d. $q(p(0))$

e. $p(p(5))$

f. $q(q(2))$

29. Write a function formula for the piecewise function $g(x)$.



30. What is the domain of $g(x)$?

31. What is the range of $g(x)$?

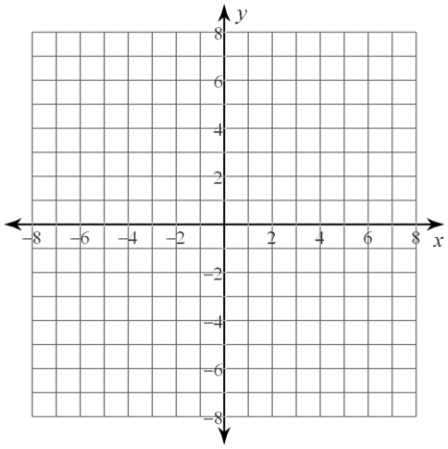
32. Evaluate $g(4)$.

33. Solve $g(x) = 4$.

34. Graph the piecewise function. Also identify its domain and range.

$$g(x) = \begin{cases} x+1, & x < -1 \\ -x+4, & -1 \le x < 4 \\ -6, & x \ge 4 \end{cases}$$

DOMAIN _____ RANGE _____



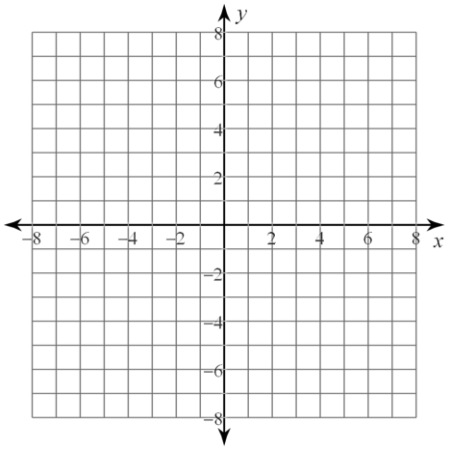
35. Evaluate $g(-10)$.

36. Evaluate $g(20)$.

37. Graph the piecewise function. Also identify its domain and range.

$$f(x)=\begin{cases} x+3, & x<-4 \\ 6, & -4\le x<2 \\ 2x-4, & x\ge 2 \end{cases}$$

DOMAIN _____ RANGE _____



38. Evaluate $f(-12)$.

39. Evaluate $f(10)$.

40. You work as a special events salesperson for a golf course owned by your city. Your salary is based on the following. You receive a flat salary of \$1500 per month for sales of \$10,000 or less; for the next \$30,000 of sales, you receive your salary plus 2% of the sales over \$10,000 and up to \$40,000; and for any sales exceeding \$40,000, you receive your salary and commission of 4% of sales over \$40,000. Your salary is a function of the sales.

a. Identify the input variable.

b. Identify the output variable.

c. If the sales are \$25,000, what is your salary?

d. If the sales are \$55,000, what is your salary?

e. Write a piecewise defined function, $S(x)$, that represents your salary as a function of the sales, x.

$$S(x)=\begin{cases} \_\_\_\_\_ & \_\_\_\_\_ \\ \_\_\_\_\_ & \_\_\_\_\_ \\ \_\_\_\_\_ & \_\_\_\_\_ \end{cases}$$

f. You need to make \$3150 to cover your expenses this month. What will your sales have to be for your salary to be that amount?