

Name _____
Chapter 2 Review

Date _____
Period _____

Let $f(x) = 2x + 5$, $g(x) = x^2 - 10$, and $h(x) = 3x - 8$. Find:

1) $f(g(3))$

2) $g(h(0))$

3) $h(f(-1))$

4) $g(f(h(0)))$

5) $f(f^{-1}(x))$

6) $h(h(x))$

Let $f(x) = \frac{1}{2}x + 1$, $g(x) = 2x - 2$, and $h(x) = 4x$. Find:

7) $f \circ g(n)$

8) $h \circ f(t)$

9) $g \circ h(z)$

10) $g \circ f(-c)$

11) $f \circ h(-n)$

12) $h \circ g(-y)$

Find the inverse. Is it a function?

13) $f(x) = 2x + 3$

14) $f(x) = 2.5x - 3.1$

15) $f(x) = \frac{x+5}{4}$

16) $f(x) = 2x^2 + 5$

17) $f(x) = x^3$

18) $f(x) = 3\sqrt{x} + 3$

19) $f(x) = \frac{4x^2 + 5}{4}$

20) $f(x) = \sqrt{2 - 3x}$

21) $f(x) = \frac{4}{x-1} + 10$

Is the function even, odd or neither?

22) $f(x) = 5x^2$

23) $f(x) = \sqrt[5]{x} + 5$

24) $f(x) = 8x^4 - 2x^2$

25) $f(x) = |x| - x$

26) $f(x) = -2x^3 + 4x^2$

27) $f(x) = 4x + \frac{1}{x}$

Tell if the relation is symmetric with respect to the x-axis, y-axis and/or origin.

28) $2y = 4x^2 + 3$

29) $4y = |x|$

30) $9y^3 = 6x^2 - 7$

31) $2y = \frac{5}{x}$

32) $y = 4x^2 + 5x + 8$

33) $x = 8y^4 - 6y^2 + 5$

Graph each function.

34) $f(x) = \begin{cases} |x-1|, & \text{if } x > 0 \\ 6-3x, & \text{if } x \leq 0 \end{cases}$

35) $f(x) = \begin{cases} \sqrt{x+1}, & \text{if } x \geq -1 \\ (x+3)^2, & \text{if } x < -1 \end{cases}$

36) $f(x) = \begin{cases} x, & \text{if } x > -2 \\ x^2 + 3x, & \text{if } x \leq -2 \end{cases}$

37) $f(x) = \begin{cases} |x^2 - 1| & \text{if } x \geq -1 \\ 2x^2 - 5, & \text{if } x < -1 \end{cases}$

38) $f(x) = \begin{cases} 3x + 2, & \text{if } x \geq 1 \\ 5x, & \text{if } x < 1 \end{cases}$

39) $f(x) = \begin{cases} -(x+3)^2 + 4 & x < -1 \\ 2x & -1 < x < 2 \\ 4 - \sqrt{x-2} & 2 \leq x \end{cases}$

List the transformations

40) $f(x) - 5$

41) $f(-x) + 3$

42) $4f(x+1)$

43) $-2f(x+6)$

44) $-\frac{f(x)}{2}$

45) $\frac{f(x)+5}{4}$

For the following functions, (a) find the domain, (b) find the range and (c) find the zeros

$$46) a(x) = \{(1,3), (4,-2), (5,0), (0,6), (-3,3)\}$$

$$47) b(x) = \sqrt{32 - 2x^2}$$

$$48) c(x) = \begin{cases} -4x + 2 & \text{if } x \leq 0 \\ 6 + x & \text{if } x > 0 \end{cases}$$

State the parent function and determine what translations happened to change it from the parent function to the function that is given.

$$49) f(x) = -2|x + 2| - 2$$

$$50) g(x) = (2x + 3)^3 - 2$$

$$51) h(x) = \frac{1}{2}(x - 3)^2$$

$$52) k(x) = -\sqrt{5 - x} + 3$$

Find the domain of $f(g(x))$ and $g(f(x))$.

$$53) f(x) = \frac{1}{x-1} \qquad g(x) = \sqrt{x+2} - 4$$

$$54) f(x) = \frac{2}{x+2} \qquad g(x) = 3x + 2$$

$$55) f(x) = x^2 - 25 \qquad g(x) = \sqrt{25 - x^2}$$

$$56) \text{ Solve for } x. \sqrt{x} = x + 3.$$

57) Express the area of a triangle as a function of $A(b)$ where the twice the length of the base b is equal to three more than the height h .

58) Given f is an even function and $f(2) = -3$, find two points on $f(x)$.

$$\frac{f(x+h) - f(x)}{h}$$

Find the difference quotient $\frac{f(x+h) - f(x)}{h}$ for each function.

59) $f(x) = x^2 - 12x - 28$

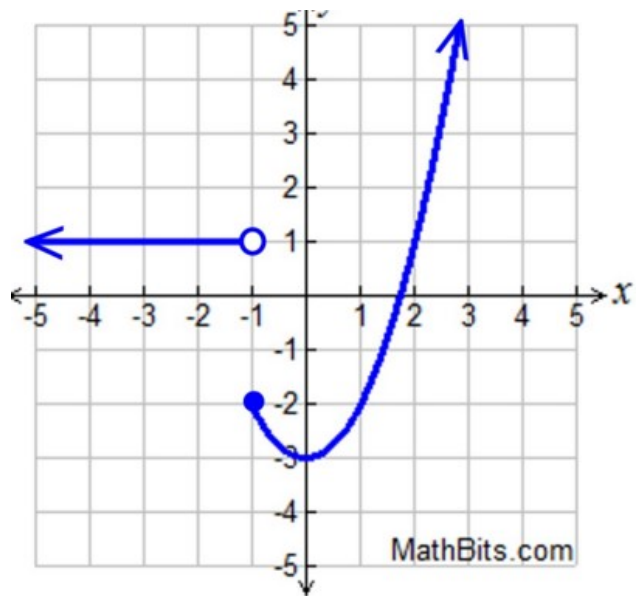
60) $f(x) = 4x^2 - 3x + 7$

61) Find the domain of $g(x)$.

a. $g(x) = \frac{x-1}{x^2-5}$

b. $g(x) = \sqrt{2+3x}$

- 62)
- $f(-1)$
- $f(1)$
- Domain
- Range
- Zero(s)
- Is it a function?
- Intervals of Increasing
- Intervals of Decreasing
- Relative Minimum(s)
- Relative Maximum(s)
- Is it even or odd?
- Is it one-to-one?



- 63) Given: All circles are open
- $f(-1)$
- $f(1)$
- x if $f(x) = 1$
- Domain
- Range
- Is it a function?
- Is it even or odd?
- Is it one-to-one?

