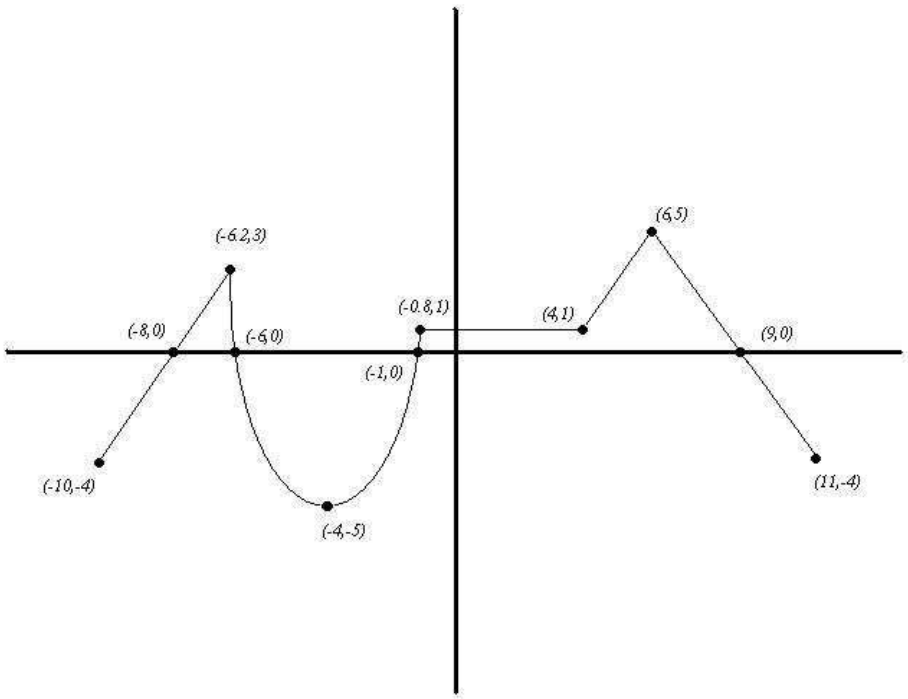
Trig/Pre-Calculus

Mid-Chapter Review Worksheet

1. Using the graph on the right, complete the following statements.



The value of the function is increasing in the intervals:

The value of the function is decreasing in the intervals:

The value of the function is constant in the interval:

The value of the function is positive in the intervals:

The value of the function is negative in the intervals:

2. Given $f_{(x)} = 3x - 6$, $g_{(x)} = x - 12$, and $h_{(x)} = -2x - 5$ find each of the following.

a. $f(a+b)$ **b.** $g(3x+2)$ **c.** $h(x-12)$

d. $f(x+2) - g(3x-1)$ **e.** $f(2) + g(2) + h(2)$ **f.** $(f+g)(6)$

3. Given $f(x) = \begin{cases} x+3, & x<0 \\ 3, & 0<x\le 2 \\ 2x-1, & x>2 \end{cases}$ **and** $g(x) = \begin{cases} \sqrt{x+2}+1, & x>-2 \\ (x+2)^2+1, & x<-2 \end{cases}$ **find each of the following.**

a. $f(6)$ **b.** $g(-10)$ **c.** $f(2)$ **d.** $g(7)$ **e.** $f(-4)$

Identify the following functions as being either Even, Odd or Neither.

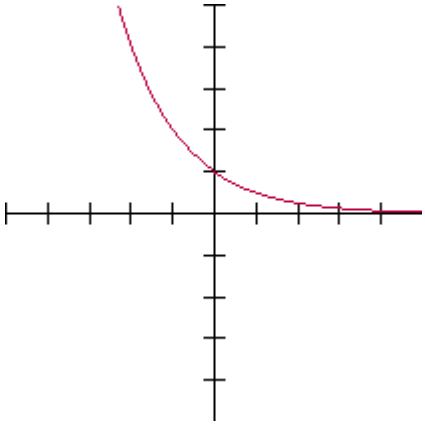
4. $f(x) = 12x^5 - 4x^3 + 7x$ **5.** $g(x) = 3x^7 - 5x^3 + 12x - 1$ **6.** $h(x) = 5x^6 - 3x^4 + x^2 - 2$

7. Identify which of the following represents a function. State the rationale for your conclusions.

a. $4x-3y+6=0$ **b.** $y=\sqrt{x-2}+4$ **c.** $x+y^2-2y+1=0$ **d.** $y=x$

e. $x^2+y^2=16$ **f.** $y=\frac{1}{4}(x-3)^2+2$ **g.** $x=(y-5)^2+1$ **h.** $x=5y^2+3$

i



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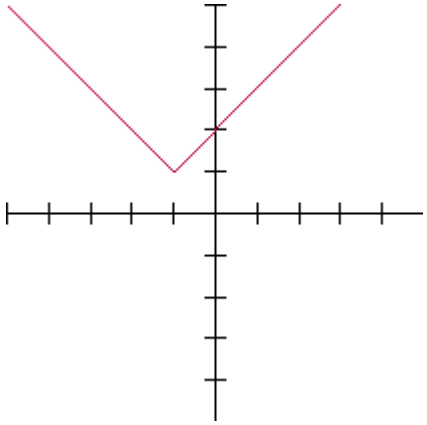

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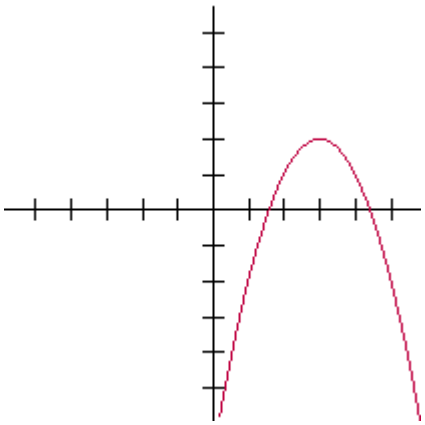

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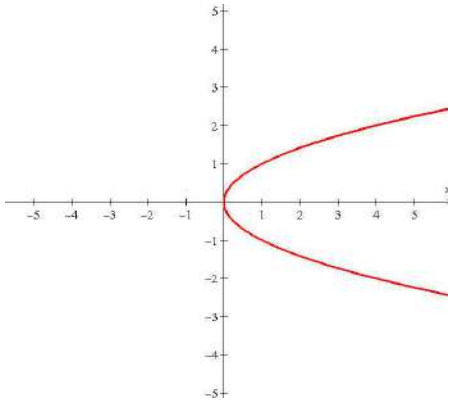

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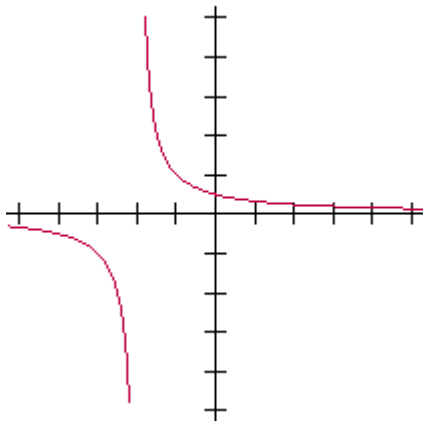

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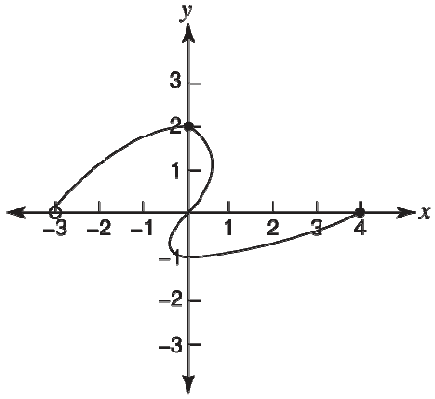
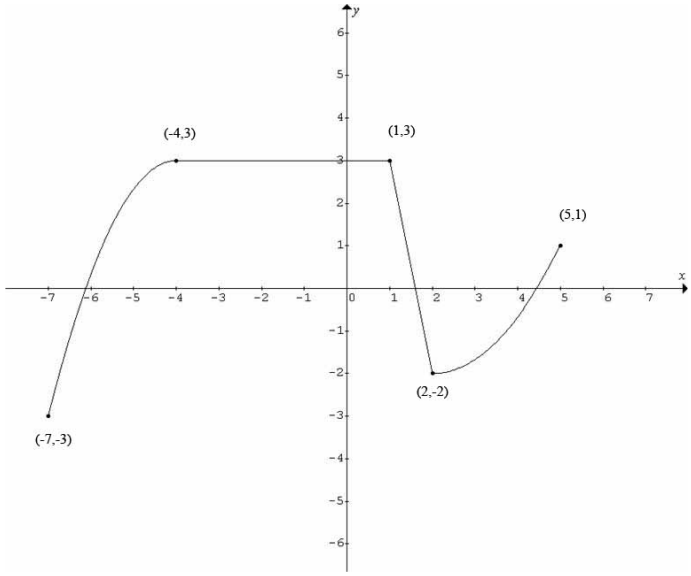


8.

Identify the range and domain of the graph pictured on the right. Make sure to use interval notation.



Range:

Domain:

Find the domain of each of the following functions.

9. $f_{(x)} = 2(x-3)^2 + 1$

10. $f_{(x)} = \sqrt{x+4} - 2$

11. $f_{(x)} = \dfrac{x+5}{x-2}$

12. $f_{(x)} = (x+1)^3 - 5$

13. $f_{(x)} = \dfrac{1}{\sqrt{x}}$

14. $f_{(x)} = \dfrac{x+3}{x^2+3x-40}$

15. $f_{(x)} = \sqrt{4-x} + 1$

16. $f_{(x)} = -\sqrt[3]{x+2} - 1$

17. $f_{(x)} = \dfrac{1}{\sqrt{x^2-9}}$

18. Find the equation of the line that contains the points (-2,-4) **and** (6,2).

19. If a line is perpendicular to y = 2x + 3, what is the slope of that perpendicular line?

20. If a line is parallel to y = -3/5 x –5, what is the slope of that parallel line?

21. In the year 2000, Matt was hired, and told he would get a raise every year he was with the company. That year, he made $32,000 with the company. In 2004, he made $54,000. If Matt's annual raise is constant, how much money will Matt make in 2015?

22. The slope of a line containing the points (4,4) and (8,k) is 2. Find the value of k

23. Find the equation of the line where $f(2) = 6$ **and** $f(4) = 0$**.**

24. Derive the linear function that will yield the following results.

x	-5	-4	-3	-2	-1
y	6	8	10	12	14

Find the difference quotient for each of the following.

$$\frac{f(x+h)-f(x)}{h},\ h\neq 0$$

25. $f(x)=x+8$ **26.** $f(x)=3x-6$ **27.** $f(x)=x^2-7$ **28.** $f(x)=4x^2+12$

29. $f(x)=x^2-5x+2$ **30.** $f(x)=2x^2+7x-3$ **31.** $f(x)=4x^2-3x+8$