Precalculus – Chapter 1 Highlights   Name: _____

The majority of these questions were ones you encountered last year in Algebra 2. This packet is an overview of concepts learned in Algebra 2 that will be helpful for PreCalculus. You should try every question in this packet as well as do the suggested problems in the book listed on the assignment sheet in preparation for your chapter 1 test on September 17th.

1) What Quadrant is (x,y) located in if: $y>0$ & $x<-4$

For numbers 2 – 4 use: If $f(-3)=5$ & $f(1)=-11$

   2) What is the linear function that contains the two values?

   3) What is the distance between the two points?
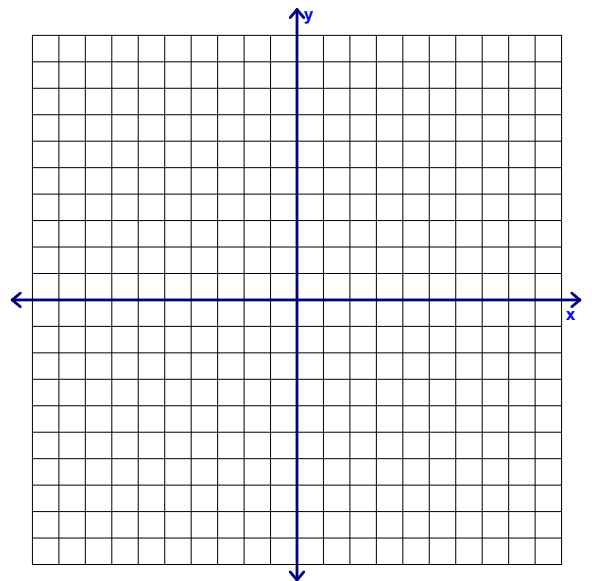
   4) What is the MIDPOINT of the two points?

5) A circle has a radius of 6 and a center at $(4,-7)$. What is the equation for the circle?

Use the following function for numbers 6 – 8: $f(x)=\sqrt{x+2}+3$

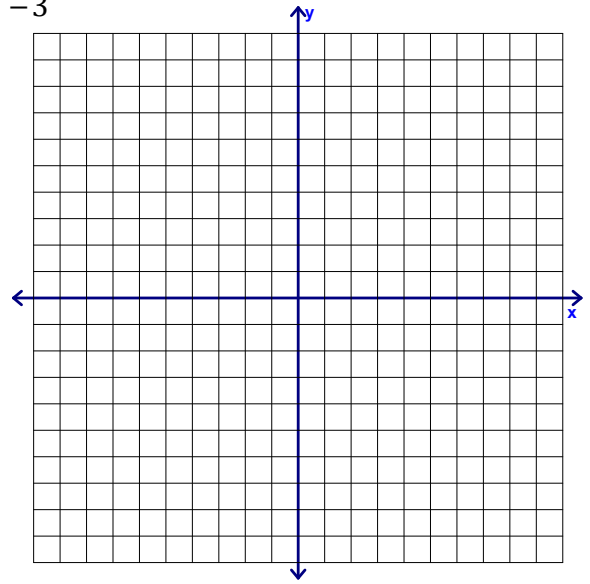   6) Sketch the best graph for $f(x)$

   7) What is the x-intercept?

   8) What is the y-intercept?

Precalculus – Chapter 1 Highlights

Use the following function for numbers 9 – 11: $g(x)=(x-5)^2-3$

9) Sketch the best graph for $g(x)$

10) What is the x-intercept?

11) What is the y-intercept?

For questions 12 & 13, use: $f(x)=-\frac{1}{2}x^2+3x-4$

12) What are the zero(s) of the function?

13) What is the average rate of change from $X=-3$ to $x=0$?

Evaluate the function for the given values: $k(x)=\left[\!\left[-0.3x+1\right]\!\right]-1.5$
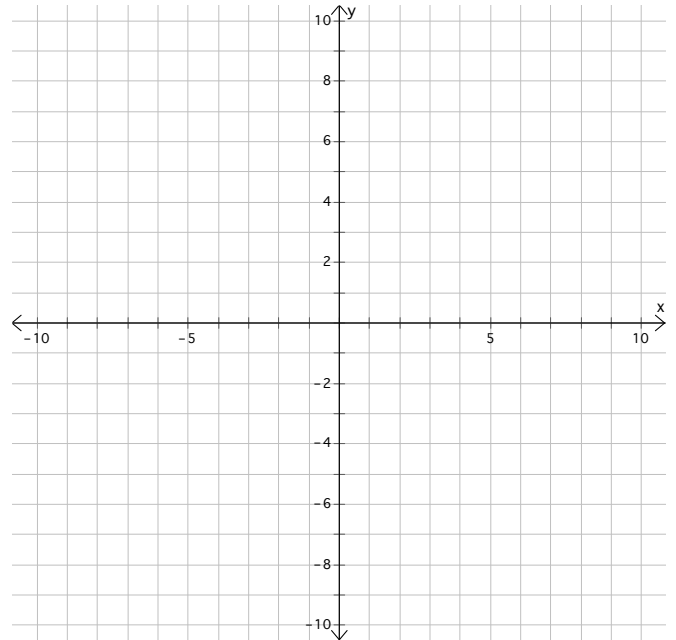
14) $k(6)=$

15) $k(-4.1)=$

Precalculus – Chapter 1 Highlights

16) Sketch the piecewise function :

$$f\left(x\right)=\begin{cases} 3x+1 & x\leq 1 \\ (x-3)^2+1 & x>1 \end{cases}$$

For numbers 17 &18, Use the following: **IF:** $f\left(x\right)=-3\left(x+2\right)^2-1$

17) What is the value of $f\left(-4\right)$?

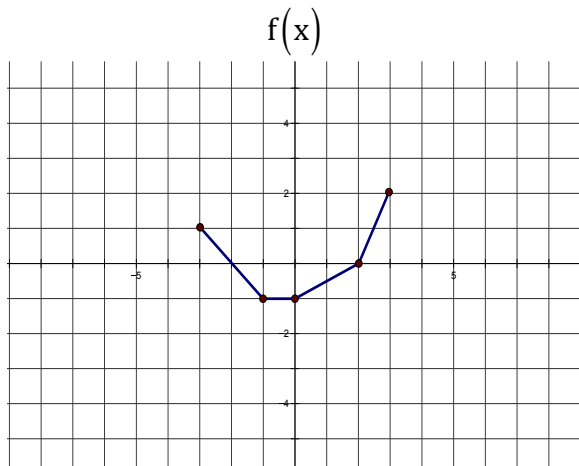18) Describe the transformation compared to $f\left(x\right)=x^2$:

For numbers 19 & 20: write a mathematical equation for the quantity described:
19) y is six less than an 18% decrease in x

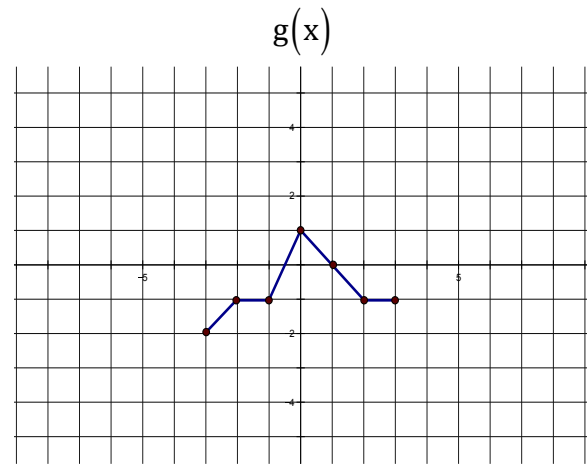20) Total cost includes a rental fee of $199 every month on top of the one-time $1600 in moving costs.

Precalculus – Chapter 1 Highlights

For numbers 21 – 24, use the graph of $f(x)$ and $g(x)$ below:

f(x)

g(x)

21) Calculate $(f \circ g)(2)$

22) Calculate $(f+g)(-2)$

23) Calculate $(f \circ f)(3)$

24) Calculate $(f/g)(2)$

For numbers 25 – 28 use $f(x) = \dfrac{2}{x+5}$

25) What is the domain of $f(x)$?

26) Find $f^{-1}(x)$

27) What is the domain of $f^{-1}(x)$?

28) Show that $f(f^{-1}(x)) = x$

Precalculus – Chapter 1 Highlights

If $f(x) = 2x^3 - 3$

    29) Does the function have an inverse function? If so, find it.

    30) What type of symmetry does $f(x)$ have?

    31) Is function $f(x)$ even, odd or neither?

If $f(x) = \dfrac{1}{3}|x| + 3$

    32) Does the function have an inverse function? If so, find it.

    33) What type of symmetry does $f(x)$ have?

    34) Is function $f(x)$ even, odd or neither?

35) Lids is having a sale on baseball caps. The Red Sox caps are usually $20 each, and they are on sale for 20% off. In the bargain bin, there are Yankees caps that are usually $25 each that are on sale for 30% off.   Which caps are truly cheaper? Be sure to show your analysis.

36) $f(x) = -2x^2 + 3x - 9$

    a)   Find $f(x+h)$

    b)   Find $f(x+h) - f(x)$

    c)   Find $\dfrac{f(x+h) - f(x)}{h}$

37) If $f(x) = 3x + 7$

    Find $\dfrac{f(x+h) - f(x)}{h}$

Be sure to know how to do every problem in this packet prior to the Chapter 1 Test. Much of it is review, but ask questions to be sure you remember everything!