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Pre-Calculus Summer Assignment 2019

Name:_____HR_____

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Welcome to Pre-calculus Honors!!! As you enter pre-calculus, it is expected that you have mastered the content in the courses from Algebra to Geometry as this is important to your success in pre-calculus. You will discover that many times you will be able to do the pre-calculus work, only to find the final answer is incorrect due to an algebraic error in your work.

In order for you to be successful in pre-calculus, you need to review some of the essential pre-requisite skills. These skills are the culmination of all the mathematics you have ever had and are contained in this summer assignment.

When you come across a topic that requires a little more review, feel free to search a website, call a friend or email me your questions. Relevant websites can be found at:

- ***http://patrickjmt.com/***
- ***http://www.khanacademy.org***
- *www.mastermathmentor.com*

✓ ***You must do each of the problems without a calculator, showing ALL steps which lead to the solution in an organized manner.***

✓ ***Show all work on every problem to receive credit. Circle all answers. If you need extra space, use the back of the page.***

✓ ***All work must be done in pencil (No pens).***

For the first day of class, you will need either a three-subject notebook or a two inch binder with paper strictly for pre-calculus. Also get yourself a folder for handouts. Pre-Calculus is a fast paced and challenging course. It is extremely important to be organized and always prepared for class.

This packet is due on September 5th. The content contained in this packet is pre-requisite knowledge for pre-calculus. Make sure you can recognize the graphs of all parent functions.

Solving Equations

1) $5x^4 = 135x$

2) $3|2x+5| = 15$

3) $\frac{3}{x+2} - \frac{4}{x-2} = 5$

4) $x^3 + 6x^2 - x - 6 = 0$

5) $\sqrt[3]{4x+7} + 2 = 5$

6) $x^4 - 22x^2 + 96 = 0$

Factoring polynomials

7) $x^3 + 8x - 5x^2 - 40$

8) $3x^2 - 14x + 16$

9) $4x^2 - 81$

10) $2x^3 - 8x^2 + 32x$

11) $125x^3 - 27$

12) $x^3 - 4x^2 - 9x + 36$

For questions 13 - 19, match each parent graph to its equation

A) $f(x)=\frac{1}{x}$ B) $f(x)=|x|$ C) $f(x)=\sqrt{x}$ D) $f(x)=x^2$

E) $f(x)=2^x$ F) $f(x)=\log_2 x$ G) $f(x)=x^3$

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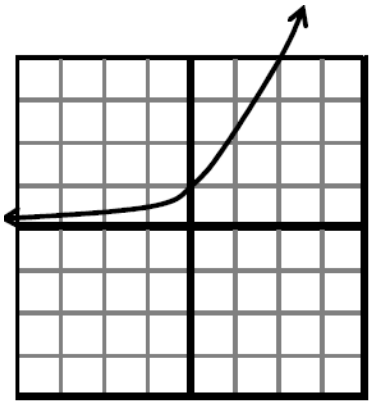
13)



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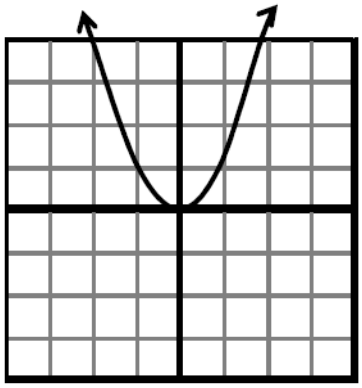

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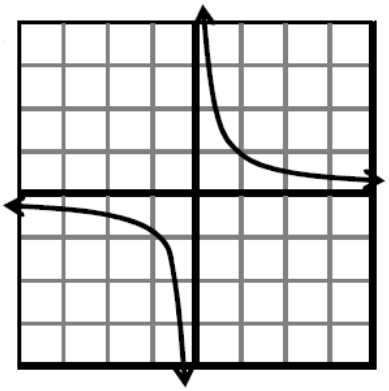

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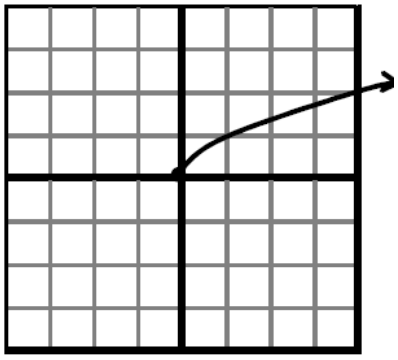

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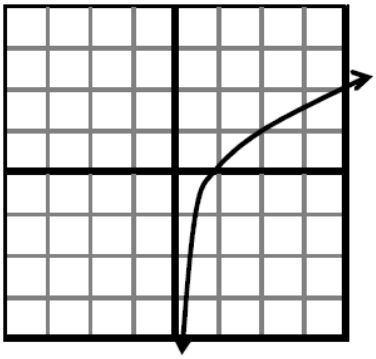

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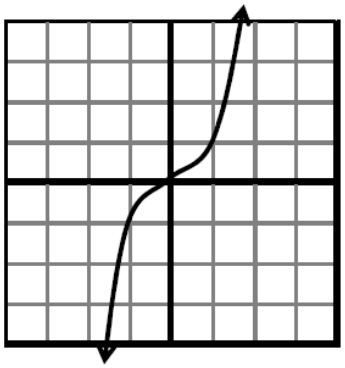

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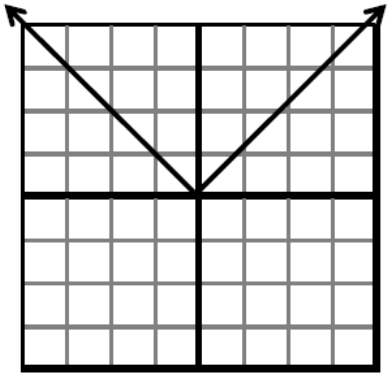
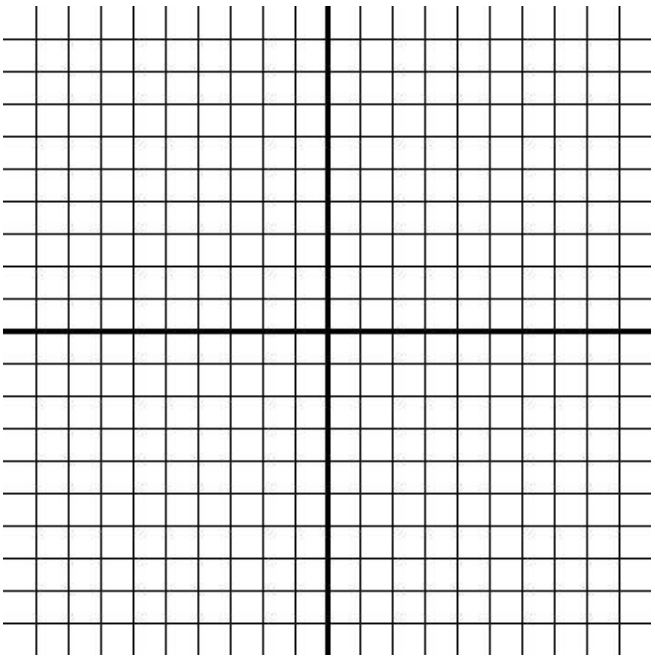


Analyzing graphs

20) Given: $f(x) = x^2 - 5x + 4$



a) What is the vertex of $f(x)$?

b) What are the x-intercepts?

c) What is the y-intercept?

e) Graph $f(x)$.

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

g) What is the range of $f(x)$?

21) Find the domain of each function

a) $h(x) = 4x - 3$

b) $f(x) = \frac{2x}{x-3}$

c) $g(x) = \sqrt{x-2}$

d) $f(x) = \frac{x+2}{x(x+3)}$

e) $y = \frac{2}{x^2-4}$

22) Find $[f \circ g](x)$ for each $f(x)$ and $g(x)$. Also, state the domain of the composition.

a) $f(x) = x^2$ and $g(x) = \frac{1}{x^3}$

b) $f(x) = \frac{x}{x-2}$ and $g(x) = \frac{3}{x}$