Dear future Pre-Calculus student,

In order to ensure that you are prepared for Pre-Calculus Regents, we have designed this summer review of Algebra skills and concepts. The goal of this assignment is to refresh those skills that we will be building upon and using frequently this year in our course.

As you will notice on the assignment, after each problem there is a survey which asks how much help, if any, was needed to complete the problem. Help on a problem might include; looking at old notes, looking something up online, help from other people, etc… The expectation is for you to do as much as you can on your own, as the questions are all topics that have previously been taught. However, if you did receive help it is important that you be honest on the survey as we will use the results to help us determine our pace for the material in the prerequisite chapter.

The assignment is due on the first day of school, and will be the first quiz grade of the year. We look forward to seeing you (and your completed assignment) in September.

Sincerely,

The Teachers of Precalculus Regents
Name ______________________

Pre-calculus Summer Assignment

Directions: After you finish each question, please circle the number of the option below it, that tells us how you were able to complete the problem.

1) Factor the following expression completely: $12x^3y - 18x^2y^3$

1 - I received significant help on this problem
2 - I was able to do the problem with a little help
3 - I was able to do the problem without any help

(What was your source of help_____________________________)

2) Factor the following expression completely: $x^2 - x - 12$

1 - I received significant help on this problem
2 - I was able to do the problem with a little help
3 - I was able to do the problem without any help

(What was your source of help_____________________________)

3) Factor the following expression completely: $6x^2 - 5x - 4$

1 - I received significant help on this problem
2 - I was able to do the problem with a little help
3 - I was able to do the problem without any help

(What was your source of help_____________________________)

4) Factor the following expression completely: $4x^2 - 14x + 6$

1 - I received significant help on this problem
2 - I was able to do the problem with a little help
3 - I was able to do the problem without any help

(What was your source of help_____________________________)

5) Factor the following expression completely: $9x^6 - 25c^6$

1 - I received significant help on this problem
2 - I was able to do the problem with a little help
3 - I was able to do the problem without any help

(What was your source of help_____________________________)


6) Factor the following expression completely: \( x^3 - 125c^9 \)

1 - I received significant help on this problem  
2 - I was able to do the problem with a little help  
3 - I was able to do the problem without any help  
(What was your source of help __________________________________________)

7) Find the equation of a circle with endpoints of a diameter at (-2, 6) and (4, -2).

1 - I received significant help on this problem  
2 - I was able to do the problem with a little help  
3 - I was able to do the problem without any help  
(What was your source of help __________________________________________)

8) Find the equation of a line which is perpendicular to \( 3x - 4y + 8 = 0 \) and passes through the point (-6, 5).

1 - I received significant help on this problem  
2 - I was able to do the problem with a little help  
3 - I was able to do the problem without any help  
(What was your source of help __________________________________________)

9) Find the equation of a line which passes through the points (-8, -3) and (6, -7).

1 - I received significant help on this problem  
2 - I was able to do the problem with a little help  
3 - I was able to do the problem without any help  
(What was your source of help __________________________________________)
10) Write the solution shown on the number line graph below using interval notation.

11) Solve the following equation: \[ 2x + 3(x - 2) = 9x - (2x - 4) \]

12) Solve the following equation: \[ x^2 - 2x = 35 \]

13) Solve the following equation: \[ x^2 = 4x + 2 \]
14) Solve the following equation algebraically: \[ \sqrt{x - 4} = -x + 4 \]

15) Solve the following equation algebraically: \[ |2x - 1| = x + 6 \]

16) Solve the following equation algebraically: \[ \frac{5}{x + 5} - \frac{3}{x - 5} = \frac{6}{x^2 - 25} \]

17) Simplify the following expression: \[ \frac{1}{y} + \frac{4}{y^2 - 4} - \frac{2}{y^2 - 2y} \]
18) Simplify the following expression: 
\[
\frac{4}{3x} + \frac{2}{x^2} - \frac{2}{x}
\]

1 - I received significant help on this problem (What was your source of help ____________________________)
2 - I was able to do the problem with a little help (What was your source of help ____________________________)
3 - I was able to do the problem without any help

19) Solve the inequality and express your answer in interval notation:  
\[x^2 - 10 < -3x\]

1 - I received significant help on this problem (What was your source of help ____________________________)
2 - I was able to do the problem with a little help (What was your source of help ____________________________)
3 - I was able to do the problem without any help

20) Solve the inequality and express your answer in interval notation:  
\[|3x - 2| \geq 8\]

1 - I received significant help on this problem (What was your source of help ____________________________)
2 - I was able to do the problem with a little help (What was your source of help ____________________________)
3 - I was able to do the problem without any help