SUMMER REVIEW FOR STUDENTS ENTERING **PRECALCULUS**

The assignment below is a review of the Algebra 2 concepts learned this year and is due on the first day of school. Show ALL work on neatly on a separate sheet of paper.

PART I: Points and Lines

1) Write the equation for the vertical and horizontal lines through the point (1,3).

In exercises #2-5, write the equation for the given line in slope-intercept form:

2) The line through the point P(2, 3) with m = 2

3) The line through the point P(2, 3) with slope 0

4) The line through the point P(1,0) and no slope

5) The line through the points (-2, -2) and (1, 3)

6) Find the slope-intercept form of the equation of a line through P(6,2) and parallel to the line 2x – y = -2

7) Find the slope-intercept form of the equation of the line through P(6,2) and perpendicular to the line 2x – y = -2

PART II: Functions and Graphing

For numbers 8 – 17, sketch the graphs from memory. Plot at least 5 points. Then state the ***DOMAIN and RANGE****:*

8) $y = (x+1)^2 - 3$

9) $y = x^3$

10) $y = \sqrt{x}$

11) $y = e^x$

12) $y = \ln x$

13) $y = \frac{1}{x}$

14) $y = \frac{1}{x-2}$

15) $y = |x+1|$

PART III: Factoring, Simplifying and Solving Equations:

In numbers 16-18, solve the following system of equations. You may use any method as long as you show work.

16) $\begin{cases} 8x + y = 11 \\ x - y = 97 \end{cases}$

17) $\begin{cases} 2x + y = 6 \\ 4x + 2y = 8 \end{cases}$

18) Solve the following equation for x:
$2xy = 3y$

For numbers 19-23, factor completely:

19) $x^2 - 36$

20) $x^2 - 2x + 8$

21) $x^3 + 8x^2 - 20x$

22) $3y^3 - 18y^2 - 48y$

23) $5(3x - 7) + x(3x - 7)$

For numbers 24-32, solve the equations

24) $3 - 2m = 3m + 1$

25) $\frac{1}{3}x = 2 - \frac{2}{3}x$

26) $x^3 - 2x^2 - 4x + 8 = 0$

27) $2x^2 + 5x - 3 = 0$

28) Solve by completing the square:
$x^2 - 14x = 15$

29) $\sqrt{2x+1} = \sqrt{x+6}$

30) $\frac{x+1}{3x-6} = \frac{5x}{6}$

31) $2x^2 = x$

32) $\sqrt{x-5} = 2\sqrt{x}$

In numbers 33-38, simplify the expressions:

33) $\frac{2x^2+3x-2}{x^2+2x-35} \bullet \frac{x^2-49}{2x^2+5x+2}$

34) $\frac{\frac{6x}{x^2-4}}{\frac{3x-9}{2x+4}}$

35) $\frac{3-\sqrt{2}}{2\sqrt{3}}$

36) $\log_3 27$

37) $e^{\ln 2}$

38) $\left(\frac{1}{625}\right)^{\frac{-3}{4}}$