Math 1210 Prerequisite Review, Part 1

Please use additional sheets of paper for this assignment. For full credit, the work must be legible and easy to follow.

I. The Basic Library of Functions.

For each of the following functions:

       a. State the domain and range
       b. State any intercepts as (x, y) ordered pairs
       c. Graph the function being sure to show intercepts. Your graph must correctly show the end behaviors of the functions, i.e. ending in a solid dot, an open dot or an arrow.

1. $y = c$, where c is any real number

2. $y = x$

3. $y = x^2$

4. $y = x^3$

5. $y = \sqrt{x}$

6. $y = \sqrt[3]{x}$

7. $y = |x|$

8. $y = \dfrac{1}{x}$

9. $y = \ln x$

10. $y = e^x$

II. Linear Review

1. The slope-intercept form of the equation of a line is given by $y = mx + b$, where m and b are constants. Explain the meaning of these constants.

2. Explain how the sign of the slope effects the graph of a line.

3. Find the slope-intercept form of the equation of the line that passes through the point (7, -5) and has slope $\dfrac{5}{3}$.

4. Find the slope-intercept form of the equation of the line that passes through the points (-3, 8) and (10, 1).

III. Function Review

1. What requirement must be met for a mathematical relation to be a function?

2. Given the function $f(x) = x^2 - 5x + 3$, find and simplify the following:

    a. $f(2)$

    b. $f(-6)$

    c. $f(h)$

    d. $f(x + h)$

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