Problem Set 2

NAME

DATE

Due start of class on Day 5.

1. Exponents and Logarithms
   (a) Multiply $x^4y^3z^2(1+x^2y^2)$
   (b) Simplify $((xy)^{-6})^{0.5}y^3z^3$
   (c) Simplify $((xy)^2)^{1.5}x^{-3}y^{-3}$
   (d) Solve $ln(e^5/e^{2.5})$
   (e) Simplify $e^{ln7.14}$
   (f) What is $log_{7134\pi}(1)$?
   (g) Solve for x $log_x(16) = 4$
   (h) Combine into one term: $log(3x) + 2log(y)$
2. Inequalities and Absolute Values
   (a) "Solve" for x: $x + y + 2 < 4$
   (b) "Solve" for x: $(-4)(x+7) \geq -24$
   (c) What is the absolute value of -24?
   (d) Graph $y = x^2$ and $y = x^3$
3. Factor
   (a) $x^2 + 5x + 4$
   (b) $6m^2 + 8m - 8$
   (c) $5y^2 - 12yz + 7z^2$
4. Functions
   (a) What is the difference between a function and relation (in words)?
   (b) Simplify $h(x) = g(f(x))$, where $f(x) = x^2 + 4$ and $g(x) = \sqrt{x-4}$

(c) Find the inverse function of $f(x) = 5x - 3$

(d) What is a quadratic function? (define and provide example)

(e) Why do we care if a function is monotonically doing anything?

5. Exponent(ials) Explain the difference between, and provide an example of, the following. Be sure to use an example different from the slides:

   (a) Exponent:

   (b) Exponential:

   (c) Exponential Function:

6. Matrices:

   (a) Add these two matrices: $\begin{bmatrix} 2 & 4 & 2 \\ 1 & 4 & 0 \\ 2 & 6 & 0 \end{bmatrix} + \begin{bmatrix} 5 & 1 & 1 \\ 2 & 2 & 2 \\ 4 & 1 & 3 \end{bmatrix}$

   (b) Multiply these two matrices: $\begin{bmatrix} 2 & 4 & 2 \\ 1 & 4 & 0 \\ 2 & 6 & 0 \end{bmatrix} * \begin{bmatrix} 5 & 1 & 1 \\ 2 & 2 & 2 \\ 4 & 1 & 3 \end{bmatrix}$

   (c) Provide an example matrix, showing what happens when you multiply by the identity matrix.

7. Topics and Questions

   (a) List three things you struggled with on today's assignment.

   (b) What is your plan for improving the items listed above?

   (c) What percent of the material was new to you today?

   (d) What is one new concept you learned today?

   (e) What question do you still have about the material?