Each problem is worth one half point for a total of ten. The worksheet is due Thursday, December 13 at the final, which will be in KC 100 at 10:15 AM. While I have made every effort to demonstrate the types of problems that you will expect to solve, this is not an exhaustive list. You should review tests, quizzes and homework assignments as well.

1. Perform the indicated operation and simplify.
   a. \(3 - 2i \over 1 + i\)
   
   b. \((x^2 + 3x - 1) - (2x^2 + x - 3)\)

2. Simplify. Write without using negative exponents. Assume variables represent positive real numbers.
   a. \((x^3y^{-2}z^2)(x^{-2}y^{-1}z^3)^{1/2}\)
   
   b. \(p^7q^3 \over p^3q^5\)
   
   c. \(\sqrt[3]{16x^8y^6z^2}\)
   a. $|3x - 2| = 4$
   
   b. $\frac{3}{x + 5} - 2 = \frac{x + 8}{x + 5}$
   
   c. $\sqrt{x + 2} = 5$
   
   d. $2^{x-1} = \frac{1}{64}$

4. Write an equation of the line passing through the points $(-3, 4)$ and $(5, 1)$. 
5. Solve the inequality. Write your answer using interval notation.
   a. \(|2t - 1| - 3 \leq 5\)
   b. \(2x^4 + 6x^3 \leq 0\)
   c. \(\frac{x}{x+2} \geq \frac{x-1}{x+1}\)

6. Describe the transformation of \(f\):
   a. \(h(x) = -f(x) + 2\)
   b. \(h(x) = \frac{1}{2}f(x + 3)\)
7. Does the equation \( x^2 + x - y = 0 \) define \( y \) as a function of \( x \)? If so, is the function one-to-one?

8. Complete the table:

<table>
<thead>
<tr>
<th>( x )</th>
<th>( f(x) )</th>
<th>( g(x) )</th>
<th>( (f + g)(x) )</th>
<th>( (fg)(x) )</th>
<th>( (g \circ f)(x) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. Is \( f(x) = \sqrt[3]{x + 1} \) one-to-one? If so, find \( f^{-1} \).

10. a. Write an equivalent exponential equation to \( \log_4(x + 2) = 6 \).

b. Write an equivalent logarithmic equation to \( e^{2x-1} = 5 \).