Homework 1: Due Friday February 3rd in recitation. Homework not handed in at the beginning of recitation will be considered late and will not be accepted.

Write on only one side of each page. Staple all work.

1. Graph the set $[-4, 5] \cap (2, \infty)$. Also write the final answer in interval notation.

2. Rationalize the expression
$$\frac{1}{\sqrt[4]{a^2} \cdot \sqrt[7]{b^3}}$$

3. Simplify the radical expression $\sqrt{121x^3 + 121x^2}$ where $x < 0$.

4. Problems from the textbook: # 44, 60, 78, 109 from pages 22-25.
   1. Simplify the expression $\left(\frac{s^2 t^{-4}}{5 s^{-1} t}\right)^{-2}$
   2. Evaluate $3^{2/7} 3^{12/7}$
   3. Evaluate $\frac{7^{2/3}}{7^{5/3}}$
   4. Evaluate $(\sqrt[4]{6})^{-10}$
   5. Simplify $\sqrt{\sqrt{s^3}}$
   6. Simplify $\sqrt[3]{\frac{54x^2y^4}{2x^5y}}$

5. Multiply $(x - a)(x - b)(x - c) \cdots (x - m)(x - n) \cdots (x - y)(x - z)$.

6. Prove the following two laws involving exponents:
   1. Law: $\left(\frac{a}{b}\right)^{-n} = \frac{b^n}{a^n}$
   2. Law: $\frac{a^{-n}}{b^{-m}} = \frac{b^m}{a^n}$