MATH 1523: Quiz #1

Show every step of your work. Put a box around your final answer.

1. Rationalize the denominator: [20 pts]

   $$\frac{4}{\sqrt{11} - \sqrt{7}}$$

2. Factor the polynomial: [20 pts]

   $$b^3 - 8a^6$$

3. Solve the following inequality: [20 pts]

   $$|3 - 2x| \leq 5$$

4. A rectangular room has area of 143 square feet. If the length is 2 feet longer than the width, find the dimensions of the room. [20 pts]

5. Simplify: [20 pts]

   $$\frac{x + 1}{x^2 - 9x + 8} - \frac{3x}{2x^2 - 5x + 3}$$