MATH 1643: Quiz #1

Show every step of your work. Write your answer in the given space on the right.

1. Rewrite the following expression without absolute value: \(|a - b|\) if \(a > b\) [20 pts] ______________

2. Simplify, leaving no negative exponents: \((-2r^2s)(6r^{-1}s^3)^2\) [20 pts] ______________

3. Simplify, leaving no negative exponents: \(\sqrt[4]{\frac{3x^2y^3}{4x}}\) [20 pts] ______________
4. Simplify: \( \frac{t}{t + 3} + \frac{4t}{t - 3} - \frac{18}{t^2 - 9} \) [20 pts]

\[
\frac{t}{t + 3} + \frac{4t}{t - 3} - \frac{18}{(t - 3)(t + 3)}
\]

5. Simplify: \( \frac{x^2 - y^2}{y^2 - x^2} \cdot \frac{y^2}{x^2} \cdot \frac{1}{y^2} \cdot \frac{1}{x^2} \) [20 pts]

\[
\frac{x^2 - y^2}{y^2 - x^2} \cdot \frac{y^2}{x^2} \cdot \frac{1}{y^2} \cdot \frac{1}{x^2} = \frac{1}{x^2} - \frac{1}{y^2}
\]

Hint: find a common denominator, then use the formulas for difference of cubes and difference of squares.