

For each problem, show your work.

1. **(2 points)** Write the condition $x \leq 4$ as an interval.

2. **(3 points)** Determine the value (writing as an integer or a fraction as appropriate) of $9^{-3/2}$.

3. **(3 points)** Simplify the expression $\frac{x^4yz^2}{(xyz^3)^2}$.

4. **(4 points)** Simplify the rational expression $\frac{1}{x+2} - \frac{6}{x-5}$.

5. **(4 points)** Using whatever method you wish, find the real solution or solutions to the equation $3x^2 - 5x + 4 = x + 2$.

6. **(4 points)** A boat travels at 12 miles per hour when going upstream, and 18 miles per hour when going downstream. A two-hour trip goes up the river and then back down the river to its starting point. How far did it go up the river?