1. (4 pts each) Simplify each expression. There should be no negative exponents in your answers.
   (a) $4$
   (b) $3^{4b-4}$

2. (6 pts each) Simplify each expression. There should be no negative exponents in your answers. You do not have to expand terms like $2^5$.
   (a) $\frac{5a^7}{3b^6}$
   (b) $\frac{y^3}{3^3x^9}$

3. (6 pts each) Solve by factoring. State the solution set.
   (a) $\{-6, 1\}$
   (b) $\{0, \frac{1}{6}, -2\}$
   (c) $\{4, -4, -2\}$

4. (8 pts) What is the domain of $\frac{2y + 3}{y^3 - 4y}$? State your answer in interval notation.
   Set notation: $\{y \mid y \neq 2, -2, 0\}$
   Interval notation: $(-\infty, -2) \cup (-2, 0) \cup (0, 2) \cup (2, \infty)$

5. (6 pts each) Perform the indicated operations, and express your answer in its simplest form (i.e., all fractions should be in lowest terms).
   (a) $\frac{x(x + 4)}{18(x - 2)}$
   (b) $\frac{-w - 3}{(w + 1)^2}$
6. (7 pts each) Simplify the following complex fraction; your answer should be in lowest terms:

\[
\frac{7x + 3}{x - 6}
\]