1. Describe the following sets in set notation:
   (a) The set containing the numbers 0, 1, and 3

   (b) The set of all real numbers greater than 4

2. If A and B are the sets $A = \{0, 1, 2, 3, 4\}$ and $B = \{3, 4, 5, 6\}$, then write the following in set notation:
   (a) $A \cap B$

   (b) $A \cup B$

3. Evaluate the following expressions, keeping in mind the order of operations:
   (a) $1 + 2 \cdot 3 + 4$

   (b) $(1 + 2) \cdot 3 + 4$

   (c) $1 + 2 \cdot (3 + 4)$

   (d) $(1 + 2) \cdot (3 + 4)$

   (e) $2(3 + 4)^2 - 8$

4. Evaluate the following expressions involving fractions:
   (a) $\frac{3}{8} + \frac{1}{7}$
   (b) $\frac{2x+3}{x-5} + \frac{x-1}{2(x-5)}$

5. The following intervals are written in set notation. Write them in interval notation.
   (a) $\{x \mid 0 \leq x \leq 1\}$
   (b) $\{x \mid 0 < x < 1\}$
   (c) $\{x \mid 0 < x \leq 1\}$
   (d) $\{x \mid x > 5\}$
   (e) $\{x \mid x \leq 3\}$
   (f) $\{x \mid 2 \leq x < 3 \text{ or } x > 11\}$

6. Consider the intervals $I = [0, 1]$ and $J = \left(\frac{1}{2}, \frac{3}{2}\right)$. Evaluation the following:
   (a) $I \cap J$
   (b) $I \cup J$

7. Evaluate the following expressions involving exponents:
   (a) $x^2 \cdot x^5$
   (b) $\frac{x^5}{x^2}$

(c) $(x^2)^5$

(d) $(x+y)^2$

(e) 5^{-1}

(f) 2^{-3}

(g) $8^{\frac{4}{3}}$

8. Factor the following polynomials:

(a) x^2+5x+6

(b) $2x^2-5x-3$

(c) x^2-4

9. Multiply the following polynomials:

(a) $(x+1)(x-8)$

(b) $(3x-4)(x-5)$

(c) $(x-2)(x^2+3x+7)$