Chapter Review

7.1 Multiply Two Binomials

1. Find each square.
   a) $(x + 11)^2$ b) $(5x + 4)^2$
   c) $(2x - 5)^2$ d) $(x - 12)^2$

2. Expand and simplify.
   a) $(x + 2)(x + 5)$ b) $(2x + 5)(5x - 2)$
   c) $(4x - 3)(3x + 2)$ d) $(x - 4)(x - 6)$

3. The dimensions of the school parking lot are $2x + 7$, by $x + 3$. Write a quadratic expression that represents the area of the parking lot.

4. Louis shovels his neighbour's driveway. The dimensions of the driveway are $(4x + 2)$ by $(x + 3)$.
   a) Write a quadratic expression that represents the area of the driveway.
   b) If $x = 1$ m, what is the area that needs to be shovelled?
   c) If Louis charges his neighbour $\$0.25/m^2$, how much money will he earn?

7.2 Common Factoring

5. Using the greatest common factor, write the binomial in factored form.
   a) $5x + 40$ b) $6x + 30x^2$
   c) $24x^2 - 48x$ d) $63x^2 - 49x$

6. Factor each polynomial completely.
   a) $3x^2 + 12x + 18$ b) $2x^2 + 6x - 8$
   c) $4x^2 + 12x - 40$ d) $5x^2 - 10x + 15$

7. Determine the dimensions of each rectangle, given the area.
   a) $12x^2 - 3x$ b) $20x^2 + 60x$
   c) $11x^2 + 55x$ d) $3x^2 + 42x$

7.3 Factor a Difference of Squares

8. Factor each difference of squares.
   a) $x^2 - 121$ b) $100 - 4x^2$
   c) $4x^2 - 16$ d) $9x^2 - 25$

9. The total area of the backyard is $4x^2$. Keith mowed a portion of the yard that is 2 m by 2 m. He left the rest of the yard for his father to mow.
   a) Write an expression to represent the area left for his father to mow.
   b) Factor the expressions from part a) to find expressions for the dimensions of a rectangle with an equal area to the remaining area of the backyard.
   c) Find the actual dimensions of the rectangle if $x = 2$ m.

7.4 Factor Trinomials of the Form $x^2 + bx + c$

10. Factor each trinomial.
    a) $x^2 - 20x + 100$ b) $x^2 + 16x + 15$
    c) $x^2 - 13x + 36$ d) $x^2 - 8x - 20$

11. Determine the dimensions of each rectangle, given the area.
    a) $x^2 - 13x + 40$ b) $x^2 - 6x - 16$
    c) $x^2 + 4x - 21$ d) $x^2 + 8x + 12$

12. The surface area of a student's desk is represented by $x^2 - 5x - 50$.
    a) What are the dimensions of desk?
    b) Find the actual dimensions if $x = 100$ cm.