Section 5.5: Multiplying Polynomials
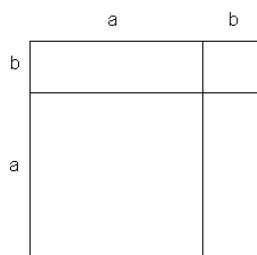
1. Which are valid representations of the area of the outer square?

   (a) $(a + b)^2$
   (b) $a^2 + b^2$
   (c) $a^2 + 2ab + b^2$
   (d) Both (a) and (b)
   (e) Both (a) and (c)
   (f) All of (a), (b), and (c)

2. Using the distributive law, simplify: $x(4x - 3) + 6(x^2 + 5x) =$

   (a) $10x^2 + 27x$
   (b) $7x^2 + 30x$
   (c) $37x^2$
   (d) $10x^2 + 30x - 3$

3. Simplify by removing parentheses: $5x - 2x[3 + 2(x - 7)] =$

   (a) $15x^2 - 105x$

(b) $6x^2 - 33x$

(c) $-4x^2 + 27x$

(d) $-4x^2 - 17x$

4. Find the product: $3x^2(5x^3 - 11x^2 + 4x - 7)$

   (a) $15x^6 - 33x^4 + 12x^2 - 21x^2$

   (b) $15x^6 - 33x^4 - 9x^2$

   (c) $15x^5 - 33x^4 + 12x^3 - 21x^2$

   (d) $15x^5 - 33x^4 + 12x^2 - 21x^2$

5. Find the product: $(8n^2 + 9n - 1) \cdot 5n =$

   (a) $40n^2 + 45n - 1$

   (b) $40n^3 + 45n^2 - 5n$

   (c) $40n^2 + 45n - 5n$

   (d) $40n^3 + 9n - 1$

6. Simplify completely: $(3x^4 - x^2 + 7)(-9x^2 + 1)$

   (a) $3x^4 - x^2 + 7 + 9x^2 - 1$

   (b) $-27x^6 + 12x^4 - 64x^2 + 7)$

   (c) $-27x^8 + 12x^4 - 64x^2 + 7$

   (d) $3x^4 - 10x^2 + 8$

7. Find the product and simplify: $(2x + 5)(3x + 2)$

   (a) $6x^2 + 10$

   (b) $6x^2 + 19x + 10$

   (c) $6x^2 + 17x + 10$

   (d) $6x^2 + 5x + 10$

8. Multiply and simplify: $(7x + 2)(x^2 + 8x - 3)$

   (a) $7x^3 + 2x^2 + 37x - 6$

   (b) $7x^3 + 58x^2 + 8x - 3$

   (c) $7x^3 + 58x^2 - 5x - 6$

   (d) $7x^3 + 2x^2 + 16x - 6$