Selected Answers (continued)

2. $-20x^2 + 30y$
3. $xy + 10x + 5y + 50$
4. $6y^2 - 5xy + x^2$
5. $-2x^2 + 17x - 21$
6. $2y^2 - 11y + 5$
7. $24x^2 + 22x - 10$
8. $x^2 + 10xy + 25y^2$
9. $x^3 + 2x^2 - 3x$
10. $2xy - 2y^2 - 7y + x - 3$

Activity 3.2B (p. 47)

1. $2x(3x + 5) = 6x^2 + 10x$
2. $(2x + 3 + y)(5x^2) = 10x^3 + 15x^2 + 5x^2y$
3. $(4x - 2)(3x - 4) = 12x^2 - 22x + 8$
4. $(-12x + 2)(-x + 4) = 12x^2 - 50x + 8$
5. One possibility: $(3 + 2x - 1)(x + 2x^2) = 4x^3 + 6x^2 + 2x$

Activity 3.2C (p. 48)

1. $(x + 1)(x + 2) = x^2 + 3x + 2$
2. $(2x + 1)(x + 2) = 2x^2 + 5x + 2$
3. $(x + 1)(x + 1)$
4. $(x + y)(x + 1)$
5. $(3x + 2)(x + 1)$
6. $(2x + 1)(2x + 3)$

Activity 3.3A (p. 52)

1. a. $x^2 + 9x = (x)(x + 9)$
$x^2 + 9x + 8 = (x + 1)(x + 8)$
$x^2 + 9x + 14 = (x + 2)(x + 7)$
$x^2 + 9x + 18 = (x + 3)(x + 6)$
$x^2 + 9x + 20 = (x + 4)(x + 5)$
b. There is no square.

2. a. $x^2 + 17x + 16 = (x + 1)(x + 16)$
$x^2 + 10x + 16 = (x + 2)(x + 8)$
$x^2 + 8x + 16 = (x + 4)(x + 4)$
b. $(x + 4)(x + 4)$ is a square.

3. a. b; c
b. $p + q = b$ and $pq = c$.

Activity 3.3B (p. 53)

1. $x^2(4x + 5)$
2. $8y^2(2 - 3x)$
3. $(x + 9)(x + 3)$
4. impossible
5. $(y - 9)(y - 2)$
6. $(x - 5)(x + 1)$
7. $30(n^3 + 2n^2 + 4)$
8. $w(w^2 - 45w - 37)$
9. $(x + 5)(x + 5)$
10. $(z - 9)(z - 4)$
11. $(y + 8)(y - 2)$
12. $(p - 7)(p + 4)$

Activity 3.3C (p. 54)

1. $2(y + 5)(x + 1) = 2xy + 2y + 10x + 10$
2. $3(x + 1)(x + 2)$
3. $2(x + 5)(x + 1)$
4. $2(x + 5)(x + y)$
5. $2(2x + 1)(x + 1)$
6. $2(x + 2)(y + 2)$

Activity 3.3D (p. 55)

1. $y(x + 3)(x + 1)$
2. $y(y)(y + 1)$
3. $(x + 1)(x + 2)(x + 5)$
4. $x(y + 2)(y + 1)$
5. $y(y + x + 1)(2x + 1)$
6. $(x + 2)(x + 1)(x + 1)$

Activity 3.4A (p. 59)

1. $2x + 1$
2. $2x + 3$
3. $2x + 5$
4. $2x + y + 5$
5. $x + 2$
6. $2x + y$
7. $x + 5$
8. $x + y + 2$

Activity 3.4B (p. 60)

1. $2xy + 2x$; $2xy$; $y^2 + y$
2. $y^2 + xy + y + x$;

$$\frac{y^3 + xy^2 + y^2 + xy}{y + x} = y^2 + y;$$

$$\frac{y^3 + xy^2 + y^2 + xy}{y + 1} = y^2 + xy$$

3. $x^2 + 3x$

$$\frac{x^3 + 4x^2 + 3x}{x + 3} = x^2 + x;$$

$$\frac{x^3 + 4x^2 + 3x}{x} = x^2 + 4x + 3x$$

Activity 3.4C (p. 61)

1. $5x + 6$
2. $-7y - 4x$
3. $3 - 4 = -1$
4. $b + c + d$
5. impossible
6. $1 + 9x - 3x^2$
7. $4t^2 - 8t + 32$
8. $6xy - 3y$

Activity 3.5A (p. 65)

1. $(x + 1)^2$
2. $(2x + 2)^2$
3. impossible
4. $(x + 6)^2$
5. $(x + 2)^2$
6. impossible
7. impossible
8. $(x + y)^2$
9. a. a square
b. a square
c. two equal rectangles
10. #3: not enough x's; #6: too many x's; #7–20: not a perfect square

Activity 3.5B (p. 66)

1. $4y^2 + 28y + 49$
2. $9x^2 - 30x + 25$
3. $a^2 - 6ab + 9b^2$
4. $4x^2 + 4xy + y^2$
5. $25y^2 + 90y + 81$
6. $36x^2 - 84x + 49$
7. $(4x + 5)^2$
8. $(2y - 7)^2$
9. $(3n - 10)^2$
10. $(a + 12)^2$

Activity 3.5C (p. 67)

1. $(x + 4)^2$
2. $(x + 7)^2$
3. $(x + 5)^2$
4. $(x + 8)^2$
5. impossible
6. $(x + 1)^2$
7. $(x + 2)^2$
8. impossible
9. a. a square
b. a square
10. #5 needed $8x$; #8 needed $6x$

Activity 3.5D (p. 68)

1. $(x + 1)^3$
2. $(x + y)^3$
3. a. False. See #1.
b. False. See #2.
c. False. See part (b).
4. $y^3 + 6y^2 + 12y + 8$
5. $x^3 - 9x^2 + 27x - 27$