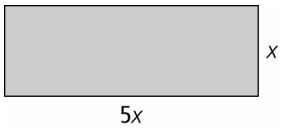
Chapter 5 BLM Answers

BLM 5–2 Chapter 5 Prerequisite Skills

1. a) 1 term, monomial **b)** 1 term, monomial
c) 3 terms, trinomial **d)** 3 terms, trinomial
2. a) $3x - 3$ **b)** $x^2 + 4x$ **c)** $-3x^2 - x + 4$
3. a) $-9x^2$ **b)** $6t^2$ **c)** $\frac{s^2}{8}$
4. a) $5p$ **b)** $-4n$ **c)** $-4.2y$
5. Since $x = 50$, the dimensions of the rectangle are 250 cm by 50 cm.



6. $\frac{\text{square}}{\text{circle}} = \frac{4}{\pi}$ *or* $\frac{\text{circle}}{\text{square}} = \frac{\pi}{4}$
7. a) $6x^2 - 2x$ **b)** $20k^2 - 5k$
c) $4x^2 - 12x$ **d)** $1.2p^2 - 0.4p$
8. a) $5b - 4$ **b)** $-3m^2 + m$ **c)** $-4h + 1$
9. $3x^2 + 6x$ **10.** $5v - 4$

BLM 5–3 Chapter 5 Warm-Up

Section 5.1
1. a) -5 **b)** -89
2. a) $3x^2 - 3xy + 15x$ **b)** $-10y^2 + 16y$
3. a) $4x^2 - 9$ **b)** $-3x^2 + 8xy - 7$
4. a) $26 - x$ **b)** $2y$ **5.** $40x^2 - 23x$

Section 5.2
1. a) (2)(2)(2)(3)(3) **b)** (2)(2)(5)(5)
2. a) 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
b) 1, 2, 4, 5, 10, 20, 25, 50, 100
3. a) 72, 144, 216, 288, 360
b) 100, 200, 300, 400, 500
4. a) 1, 2, 3, 4, 6, 8, 12, 24
b) 1, 2, 4, 5, 8, 10, 20, 40 **c)** 8
5. a) $3x^2 - 17x + 10$ **b)** $6x^3 + 36x^2 - 66x$

Section 5.3
1. a) $3x^2 + 7x - 20$ **b)** $2x^2 + 3xy - 20y^2$
2. a) $3x(x + 3)$ **b)** $2y(4x - 3y)$
3. a) $(x + 2)(x - 5)$ **b)** $(2x + 5y)(x + 2y)$
4. a) (1)(12); (2)(6); (3)(4); (−1)(−12); (−2)(−6); (−3)(−4) **b)** (1)(7); (−1)(−7) **c)** (1)(−7); (−1)(7)
5. a) (1)(−6); (−1)(6); (2)(−3); (−2)(3)
b) 3 and −2 **c)** −6 and 1

Section 5.4
1. a) $x^2 - 25$ **b)** $x^2 - 16$
2. a) $x^2 + 10x + 25$ **b)** $x^2 - 8x + 16$
3. a) $4x^2 - 9$ **b)** $36x^2 - 49$
4. a) $4x^2 + 12x + 9$ **b)** $36x^2 - 84x + 49$
5. a) Example: It means rewriting an expression as a product of two binomials.
b) $(x + 3)(x + 3)$ or $(x + 3)^2$ **c)** by expanding

BLM 5–5 Section 5.1 Extra Practice

1. a) $x^2 + 6x + 8$ **b)** $x^2 - x - 2$
2. a) $(x + 3)(x + 1) = x^2 + 4x + 3$
b) length is $x + 3$; width is $x + 1$
3. a) $x^2 - 9x + 18$ **b)** $y^2 + 5y - 50$ **c)** $2x^2 - 5x - 12$
d) $20 - 7a - 3a^2$ **e)** $3x^2 - 3xy - 6y^2$
4. a) $x^2 - 25$ **b)** $m^2 - 100$ **c)** $4x^2 - 9$ **d)** $16 - 9a^2$
e) $20x^2 - 5y^2$
5. a) $x^2 + 8x + 16$ **b)** $x^2 - 14x + 49$ **c)** $36 + 12y + y^2$
d) $4x^2 + 20xy + 25y^2$ **e)** $8a^2 + 24ab + 18b^2$
6. a) $2x^3 + 2x^2 - 2x$ **b)** $3a^3 + 9a^2 - 15a$ **c)** $x^3 + x + 10$
d) $6a^3 + a^2 - 19a + 6$ **e)** $x^4 - 4x^2 + 4x - 1$
7. a) $x^2 - 2x - 2$ **b)** $2x^2 + 4$ **c)** $3a^2 - a - 3$
d) $22yz - 5z^2$ **e)** $-12x^3 - 44x^2 + 18x + 3$
8. a) $2x^3 - 11x^2y + 12xy^2 + 9y^3$ **b)** $x^3 + 3x^2 - 9x - 27$
c) $x^4 - 2x^3 - 3x^2 + 4x + 4$ **d)** $x^3 - 9x^2 + 27x - 27$
e) $y^3 + 12y^2 + 48y + 64$
9. $5x^2 + 10x + 4$

BLM 5–6 Section 5.2 Extra Practice

1. a) 14 **b)** 81 **c)** 24 **d)** 15 **e)** 24
2. a) 156 **b)** 36 **c)** 30 **d)** 60 **e)** 880
3. a) $5x^2$ **b)** $8xy$ **c)** x **d)** $9y^2$ **e)** $2\pi x$
4. a) $5(x + 7)$ **b)** not possible **c)** $2(7x - 4y)$
d) $6x(x + 4)$ **e)** $3x(1 + 3y + 2z)$
5. a) $\square = 3a$ **b)** $\square = x - y$ **c)** $\square = 5 - 2b$
d) $\square = 3x$ **e)** $\square = 3x^2 - xy + 6y^2$
6. a) $8(x^2 + 4y^3)$ **b)** $5a(2 + a - 5a^2)$
c) $2b(12ac - 3a + 4c)$ **d)** $3xy(-4xy + y^2 - 5x^2)$
e) $3x(3\pi x - 2y + 4\pi y^2)$
7. a) $(y + 1)(x + 4)$ **b)** $(a + b)(3x - y)$
c) $(y + 3)(4y + 1)$ **d)** not possible **e)** $(x - 5)(3y + 4)$
8. a) $(x + 3y)(5 + m)$ **b)** $(y + 4)(x + 5)$
c) $(b - c)(3a + 2b)$ **d)** $(5y - 3)(2x - 1)$
e) $(2x + z)(x + 3y)$
9. a) $3x(5x + 2y)$ **b)** $2x(2\pi x - 3y)$

BLM 5–7 Section 5.3 Extra Practice

1. a) 1, 12 **b)** 2, 17 **c)** 11, −3 **d)** −5, 4 **e)** −6, −9
2. a) $(x + 3)(x + 5)$ **b)** $(x + 3)(x + 2)$ **c)** $(x + 4)(x + 7)$
d) $(m + 2)(m + 5)$ **e)** $(y + 12)^2$
3. a) $(x - 6)(x - 7)$ **b)** $(x - 9)^2$ **c)** $(x + 4)(x - 5)$
d) $(x - 1)(x + 6)$ **e)** not possible
4. a) $(x + 2y)(x + 7y)$ **b)** $(x - 4y)^2$ **c)** $(x - 3y)(x - 5y)$
d) $(m + 8n)(m - n)$ **e)** $(a - 7b)(a + b)$
5. a) $4(x + 3y)^2$ **b)** $2(x - 4)(x - 9)$ **c)** $5(x - 3y)(x + 2y)$
d) $-3(x + 11)(x + 5)$ **e)** $3(x - 7)(x - 3)$
6. a) $(2x + 3)(x + 5)$ **b)** $(3x - y)(x + 4y)$

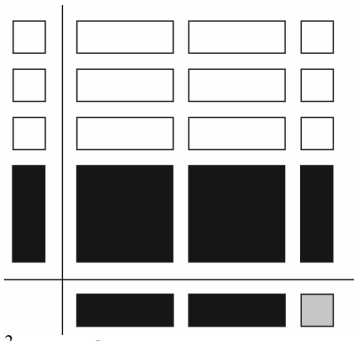
c) $(7a - 5)(a - 6)$ **d)** $(2y + 1)(5y + 2)$
e) $(2x - 3)(6x + 5)$
7. a) $2(2x - 5)(3x + 1)$ **b)** $3(3x + 4)(2x - 3)$
c) $3(5y - 4)^2$ **d)** $3x(4 + 3y)(1 - 2y)$
e) $4y(5x + 3y)(2x - 3y)$
8. Look for two values for each. **a)** 7, 11, –7, –11
b) 6, 9, –6, –9 **c)** 7, 8, 13, –7, –8, –13 **d)** 5, 8, 9
e) 4, 6
9. Look for two values for each. **a)** 7, 11, –7, –11
b) 5, 7, –5, –7 **c)** 1, 7, 13, 29, –1, –7, –13, –29
d) 3, 6 **e)** 5, 7, 10, 11, 12

BLM 5–8 Section 5.4 Extra Practice

1. a) $x^2 - 196$ **b)** $4a^2 - 49$ **c)** $121x^2 - 1$
d) $25y^2 - 81$ **e)** $x^4 - 9$
2. a) $y^2 + 20y + 100$ **b)** $64 - 16m + m^2$
c) $4a^2 - 20ak + 25k^2$ **d)** $36x^2 - 24xy + 4y^2$
e) $x^4 + 10x^2 + 25$
3. a) $\square = 5$ **b)** $(4x)^2 - (3)^2$ **c)** $(y - 12)(y + 12)$
d) $(3n + 1)(3n - 1)$ **e)** $\square = x^2 + 7$
4. a) $\square = 5$ **b)** $\square = 15$ **c)** $\square = 16$
d) $\square = -22x$ **e)** $\square = 100$
5. a) $(x - 12)(x + 12)$ **b)** $(a - 3b)(a + 3b)$
c) $(5x - y)(5x + y)$ **d)** not possible
e) $(6 - ab)(6 + ab)$
6. a) $(x + 7)^2$ **b)** $(y - 20)^2$ **c)** $(6 + a)^2$
d) $(8a - 3b)^2$ **e)** $(4x - 7y)^2$
7. a) $4(2x - y)(2x + y)$ **b)** $9x(x - 2)(x + 2)$
c) $3(3a^2 - 7)(3a^2 + 7)$ **d)** $25a(2b - 1)(2b + 1)$
e) $(x - 3)(x + 3)(x^2 + 9)$
8. a) $(y^2 - 5)^2$ **b)** $(x - 1)^2(x + 1)^2$ **c)** $25(2a - b)^2$
d) $2x(x + 10y)^2$ **e)** $(y^2 + 9)^2$
9. a) $(x - 1)(x + 9)$ **b)** $(a - 11)(a + 1)$
c) $(2 - p)(18 + p)$ **d)** $8x$ **e)** $(x - y - z)(x + y + z)$
10. a) Example: $n = 16$; $(x + 8)^2$ or $n = -16$; $(x - 8)^2$
b) Example: $n = 24$; $(y + 12)^2$ or $n = -24$; $(y - 12)^2$
c) Example: $n = 20$; $(2a + 5)^2$ or $n = -20$; $(2a - 5)^2$
d) Example: $n = 24$; $(3x + 4y)^2$ or $n = -24$; $(3x - 4y)^2$
e) Example: $n = 110$; $(5x + 11)^2$ or $n = -110$; $(5x - 11)^2$

BLM 5–9 Chapter 5 Test

1. A **2.** B **3.** C **4.** D **5.** B
6. a)



b) $2x^2 - 5x - 3$
7. a) $y^2 + 11y + 24$ **b)** $20c^2 - 41c + 9$
c) $49a^2 - 84ay + 36y^2$ **d)** $3t^3 - 17t^2 + 27t - 28$
8. a) $8x^2$ **b)** $rs^2(r + 3)$
9. a) $3ab(7a - ab + 8a^2b^2)$ **b)** $(x + 3)(x - 10)$
c) $(x - 8y)^2$ **d)** $(x - 15)(x + 15)$
10. a) Look for one set of expressions:

- $3x$; $2x + 5$; $10x + 3$
- x; $6x + 15$; $10x + 3$
- x; $2x + 5$; $30x + 9$

b) Example: $3x(2x + 5)(10x + 3) = 3x(20x^2 + 6x + 50x + 15) = 3x(20x^2 + 56x + 15) = 60x^2 + 168x + 45)$
c) 1242 cm^2
11. a) $(3x + 2)^2$ **b)** $9(x + 1)^2$ **c)** $9x + 9$