Chapter 6 BLM Answers

**BLM 6–1 Chapter 6 Prerequisite Skills**

1. **a)** $8x + 8y$ **b)** $-12s - 3t$
   c) $5p - 5q + 3r$ **d)** $-5x^2 + 13x - 21$
   e) $9x^2 + 3x - 2$

2. **a)** $7x + 4$ **b)** $-8x + 24x - 56$
   c) $24r^2 + 2r$

3. **a)** $x^2 + 3x$ **b)** $2p^2 - 7p$
   c) $2w^2 + w - 6$ **d)** $6k^2 + 2k$
   e) $3s^2 + 7s - 20$ **f)** $15x^2 + 2x - 1$
   g) $6t^2 - 29t + 20$ **h)** $4n^3 + 5n^2 - 22n + 12$

4. **a)** $x^2 - 2x - 15$ **b)** $24x^2 - 3x$

5. **a)** $6x^2 + 44x + 56$ **b)** $x^3 + 11x^2 + 28x$

6. **a)** $t(t + 4)$ **b)** $3q(2q - 1)$
   c) $2m(2m^2 - m + 6)$ **d)** $3x(3x^2 + 2x - 5)$
   e) $4w^2(2w^2 - 3w - 5)$

7. **a)** $(x + 1)(x + 4)$ **b)** $(x + 9)(x - 2)$
   c) $(k - 6)^2$ **d)** $(t - 5)(t - 3)$
   e) $3(a + 1)(a + 6)$ **f)** $4(x - 3)(x - 4)$
   g) $-2(x - 10)(x - 3)$ **h)** $5h(h + 6)(h + 4)$

8. **a)** 2, 3   **b)** $-5, -4$ **c)** $-5, 2$
   d) 5, 7   **e)** $-7, 4$

9. **a)** $2^6 = 64$ **b)** $5^3 = 125$
   c) $\left(\dfrac{1}{3}\right)^4 = \dfrac{1}{8}$ **d)** $6^{-1} = \dfrac{1}{6}$
   e) $(-2)^3 = -8$ **f)** $9^{-2} = \dfrac{1}{81}$
   g) $4^{-3} = \dfrac{1}{64}$ **h)** $\left(-\dfrac{1}{3}\right)^{-6} = 729$

10. **a)** x^5 **b)** p^3 **c)** m^3 **d)** z^9
    e) 1   **f)** b^{-32} **g)** x^{-8}

11. **a)** $w = \dfrac{P - 2l}{2}$ **b)** $a = \dfrac{2A - bh}{h}$
    c) $h = \dfrac{S - 2\pi r^2}{2\pi r}$ **d)** $r = \sqrt{\dfrac{3V}{\pi h}}$

BLM 6–3 Chapter 6 Review

1. **a)** $12p^5$ **b)** $-36w^8$ **c)** $-21x^2y^2$
   d) $-8b^3c^2$ **e)** $15e^5g^{10}$

2. **a)** $3t^3 - 2t^2v^2$ **b)** $-24g^7h - 20g^8h^2$
   c) $15c^6d^4 - 9c^5d^5$ **d)** $-14x^4y^8 + 42x^3y^{11}$
   e) $8a^5b^3 - 6a^7b^5$

3. **a)** $12a^2 - 7a - 10$ **b)** $10x^2 - 39x + 14$
   c) $3w^2 + 21w + 18$ **d)** $-2r^2 - 4r + 30$
   e) $4y^2 - 44y + 72$

4. $6x^2 + 13x + 6$

5. **a)** $6x^2 + xy - 12y^2$
   b) $12x^3 - 4x^2y - 25xy^2 + 12y^3$
   c) 225 cm^3

6. **a)** $-6, 0$
   b) $0, 10$
   c) $-13, -2$
   d) $-2, 4$
   e) $3, 15$

7. The roots of a polynomial equation are equal to the x-intercepts of the corresponding polynomial function.

8. **a)** 1, 2   **b)** $-3, 2$ **c)** $-4, 0$
   d) 4   **e)** $-3, 3$

9. **a)** $-\dfrac{1}{3}, 4$ **b)** $-\dfrac{3}{4}, 5$ **c)** $-\dfrac{1}{3}, \dfrac{3}{2}$
   d) $-4, -\dfrac{2}{5}$ **e)** $-\dfrac{3}{8}, \dfrac{5}{2}$

10. **a)** $-7, 3$ **b)** $-1, 0, 4$ **c)** $-9, 5$
    d) $-3, \dfrac{1}{2}$ **e)** $-\dfrac{3}{2}, \dfrac{3}{2}$

11. **a)** 8   **b)** 3   **c)** 2   **d)** 6   **e)** 16

12. **a)** 9   **b)** 4   **c)** -4 **d)** 125   **e)** 4

13. **a)** $-6, 6$ **b)** 6   **c)** 3   **d)** $-3, 3$ **e)** -7

14. **a)** ± 4.36 **b)** 4.64   **c)** 2.17
    d) ± 2.98 **e)** 6.08

15. **a)**
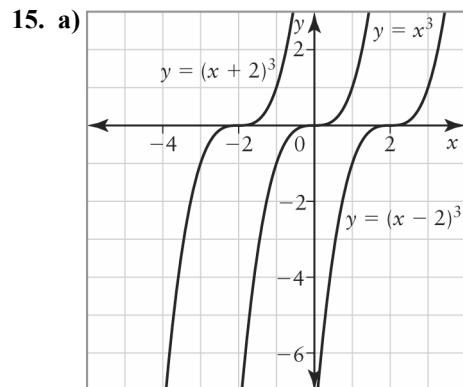
b) The shape and vertical orientation are all alike. The curve $y = (x - 2)^3$ is shifted 2 units right of $y = x^3$ and the curve $y = (x + 2)^3$ is shifted 2 units left of $y = x^3$.

c) i) 0   **ii)** -2 **iii)** -4

d) i) 3   **ii)** -7

16. a) $R = -500t(7t^2 - 124t - 40)$
    b) 0   **c)** \$3 120 000

17. a) 184.3 cm^3 **b)** $r = \sqrt{\dfrac{3V}{\pi h}}$ **c)** 13.4 cm

18. \$3752.25
19. a) $5x^2 + 3x$ **b)** 8 m^2
20. Yes, because the area to be painted is only 4.8 m^2.

BLM 6–4 Chapter 6 Practice Test

1. a) $3x^5y^2$ **b)** $-32s^2t^6$
  c) $-16a^3b^3$ **d)** $60x^8y^8$
2. a) $2p^4 - 2pq$ **b)** $-15x^3y^4 + 6x^5y^6$
  c) $4d^2e^3 + de$ **d)** $6a^6b^6 - 48a^3b^3$
3. a) $8p^2 + 6p - 5$ **b)** $3s^2 + 9s - 84$
  c) $-2x^2 + 11x - 15$
4. a) $9\pi x^2 + 6\pi x + \pi$ **b)** $6x^2 + x - 12$
5. a) $14x^2 + 16xy + 8y^2$
  b) $3x^3 + 4x^2y - 12xy^2 - 16y^3$
6. a) $-5, 0$ **b)** $-9, 4$ **c)** 3, 9
7. $(x + 6)(x + 4) = 48$; 6 ft by 8 ft

8. a) $-2, -\dfrac{5}{3}$ **b)** $-3, 7$

  c) $-\dfrac{1}{6}, 8$ **d)** $-\dfrac{8}{3}, \dfrac{3}{4}$

9. Example: Juanita must bring the constant to the left side of the equation and then factor. The factors are $(x - 4)(x + 3)$. For the equation to equal zero, one of these factors must equal zero, which happens when $x = 4$ or $x = -3$.

10. a) $-\dfrac{4}{9}, \dfrac{7}{2}$ **b)** $-\dfrac{5}{3}, 1$

11. a) 12   **b)** 3   **c)** -8
  d) 10   **e)** -4 **f)** 729

12. The calculator displays "error" because you cannot raise a negative base to an even exponent to get a negative product.
13. a) 6   **b)** ± 8 **c)** -7
14. a) ± 13.49 **b)** 10.64
15. Example: The cube root of 1000 is 10 and the cube root of 1331 is 11. Since 1205 is closer to 1331, try 10.6 as a base. 10.6^3 = 1191, which is too small, while 10.7^3 = 1225, which is too large. Since 1205 is closer to 1191, try a base in between the two, such as 10.64.
16. -12

17. a) $a = \dfrac{2(d - vt)}{t^2}$ **b)** 21.6 m/s^2

18. a) $r = \sqrt{\dfrac{V}{\pi h}}$ **b)** 10.1 m

19. a) exponential   **b)** $P = C(1.03)^t$
  c) \$1449.09
20. \$3032.43
21. a) 13   **b)** \$49.40
22. a) 73   **b)** \$624
23. a) 150 m^2 **b)** 4   **c)** \$112

BLM 6–5 Chapter 6 Case Study

1. \$2250.54
2. The 5-Year Stepper Plan is better because it yields \$42.38 more.
3. The competitor's deal is better, because after 4 years the amount is only \$12.61 less. If it was left for 5 years at the same rate, the total amount would be greater by \$51.17.