

## Chapter 6 Review

## Multiply. (6.1)

1.  $(a)(3a)$
2.  $(2a)(6a)(3a)$
3.  $(5a^2)(2a^2)$
4.  $(b^3)(5b^3)(2b^2)(4b^3)$
5.  $(2b^2)(b)(6b^4)(4b^2)(2b^5)$
6.  $(5ab^4)(a^2b^3)(4ab^2)(2a^3b^3)$
7.  $(c^2)(6c^6)(2c)(8c^4)$
8.  $(0.5a^2)(3a^7)(8a^6)(0.5a^2)$
9.  $(0.2b^6)(9b^5)(3b^4)(0.4b^2)$
10.  $(2c)(c^3)(5c^3)(6c^2)$
11.  $(0.4x^8)(0.6x^7)(2x)(x^3)(x^9)$
12.  $(4y^2)(0.8y^6)(y^{13})$
13.  $(0.5d)(4d^{12})(5d^5)(2d^{10})(d)$
14.  $(v^4)(0.4v^{13})(v^9)(0.3v^2)(6v)$
15.  $(6g^3)(g^7)(5g^5)(4g^4)(0.2g^8)$
16.  $(0.8a)(a^{15})(0.4a^7)(0.2a^9)$
17.  $(0.05b)(2b^4)(0.8b^3)(5b)$
18.  $(2z)(3z^2)(0.4z^3)(z^{16})(z^{14})$
19.  $(x^8)(3x^5)(0.5x^3)(x^2)(4x)$
20.  $(2ab^5)(0.4a^2b)(a^6b^5)$
21.  $(0.05s^4t)(4s^6t^7)(st)(st^2)$
22.  $(2h^3)(h^6)(2h^3)(0.4h^{12})(h)$
23.  $(0.2cd)(4c^7d^8)(c^5d^2)(8c^3d)$
24.  $(3x)(x^6)(5x^{13})(4x^2)(0.9x^3)$

## Divide. (6.1)

25.  $\frac{10a^6}{5a^3}$
26.  $\frac{48^7}{16x^6}$
27.  $\frac{49x^7y^{12}}{7x^5y^6}$
28.  $\frac{98a^{10}b^{13}}{7a^8b^{10}}$
29.  $\frac{125c^{16}d^9}{5c^{12}d^9}$
30.  $\frac{28x^9y^5}{4x^3y^4}$
31.  $\frac{27x^9y^7z^8}{6x^9y^6}$
32.  $\frac{11a^{12}b^{15}c}{11a^8b^{15}c}$
33.  $\frac{80x^{11}y^6z^4}{22x^9y^5}$
34.  $\frac{78a^8b^7c^6}{13a^8b^7c^6}$
35.  $\frac{45x^9yz^7}{15xyz^6}$
36.  $\frac{40x^5y^9z^3}{12x^3y^5z}$

## Name the polynomial. (6.2)

37.  $x^2 + 13x + 40$
38.  $5x + y + 4 - 10$
39.  $7y^3 + 13y^2$
40.  $z + y + x$
41.  $768a^4b^5cd^2$
42.  $443abc - a^8b^5c^3d^2$
43.  $2w + 454x$
44.  $x + y^2 + z$
45.  $65 - 9x^2y^6$
46.  $1 + a^4 + 2b^5 - a^6$
47.  $8p + 5b^2 - a^2$
48.  $\frac{1233ac}{853xyz}$
49.  $a + \frac{20xyz}{32a}$
50.  $4c + 66d + e + 2f$

## Determine the degree of the polynomial. (6.2)

51.  $4x^4 + x^3 + x^2 + x$
52.  $7x^4$
53.  $6xy^3 - 5x^2y^7 - 3x^3y^4 - 4x^4y^2 - 8x^5y^4 - 5x^6y^8$
54.  $-4x^3y^4 - 2x^4y^5 - 9x^3y^4$
55.  $2xy^2 - 3x^2y^2 - 4x^4y^2 - 3xy^8 - 6x^6y^2$
56.  $7x^2y^6 - 9x^3y^5 - 2x^3y^4 - 3x^2y^3 - 6xy^2 - 7xy$
57.  $3x^2y^4 - 8xy^3$
58.  $9x^{12}y^2 - 3x^8y^7 - 5x^6y^5 - 8x^4y^3$
59.  $x^4y - 2xy^4 - 9x^3y^2 - 3x^2y - 7xy^5$
60.  $9x^3y^6 - x^2y^5 - 5x^2y^4 - 6x^4y^3 - 3x^4y^2 - 2x^9y$
61.  $x^6y^6 - 9x^4y^7 - 4x^3y^8 - 8x^2y^9 - xy^{10}$
62.  $2xy^8 - 3x^3y^7 - 6x^3y^4$
63.  $-6x^3y^6 - 8x^2y^7 - 2xy^9 - 6x^3y^6 - xy^8$
64.  $x^5y - 8x^3y^2 - 5x^2y^3 - 7xy^4$
65.  $3x^4y^5 - 2x^4y^4 - 7x^3y^3 - 9x^2y^2 - 4xy$
66.  $-x^3y - xy - 2xy - 3xy - 4x^3$

**Simplify. (6.2)**

1.  $\frac{8a^4b^{-8}c}{4a^{-3}bc^5}$

2.  $\frac{16x^{-6}y^2}{8x^{-6}y^{-4}}$

3.  $\frac{x^{-2}y^{-3}}{12x^2y^{-3}}$

4.  $\frac{6a^{-8}b^{-3}}{4a^{-6}b}$

5.  $\frac{7c^{-5}d^6}{14cd^8}$

6.  $\frac{18x^7y^{-9}}{3x^2y^{-5}}$

7.  $\frac{3x^{-9}y^{-7}z^{-2}}{15x^{-3}y^5}$

8.  $\frac{12a^8bc^6}{6a^{-2}b^{-7}c^{-6}}$

9.  $\frac{56x^{-3}y^6z^{-4}}{-8x^{-2}y}$

10.  $\frac{22a^3b^{-5}c^{-1}}{16a^7b^{-2}c^{-6}}$

11.  $\frac{8x^{-8}y^{-4}z^{-5}}{-2y^6z^{10}}$

12.  $\frac{14x^{-2}y^{-8}z^{-6}}{8x^{-5}yz^{-5}}$

**Add algebraically. (6.3)**

13.  $(x + 6y^5 + 5z - 23) + (x^2 + y^5 + 4z + 14)$

14.  $(15x^2 + 3y^3 - 44z^2) + (8x^2 + 10y^2 - z^2 + 12)$

15.  $(-4a + 56b + 9c) + (-7a + b - 5c)$

16.  $(9d^2 - 66e^2 - 4f) + (6d^2 + 8e^2 + 7f)$

17.  $(5x^2 - 6y - 22z^2 + 12) + (-2x^2 + y - z^2 + 5)$

18.  $(16x^2 + 53y^3 - 6z^2) + (4x^2 + y^2 - 4z^2)$

19.  $(59x + 32y^3 - 8z^2) + (9x - y^3 + 5z^2)$

20.  $(14a^3 + 5b^4 + c + 4) + (-9a^3 + 10b^4 + c)$

21.  $(-15r^2 - 2s - 5t^4) + (7r^2 - 15s - 8t^4)$

22.  $(22x - 6y^3 + 12z^5) + (x + 25y^3 + 2z^5 + 2)$

23.  $(-13c + b^2 - 8c^2 + 9) + (c^2 + 15b^2 - 3c - 32)$

24.  $(p + 12q^3 - 7r^2) + (-9p + 3q^3 + 9r^2)$

25.  $(3x + 5y^2 + 2z^2 + 1) + (2x + y^2 + 5z^2 + 12)$

26.  $(-3x^2 - 7y^3 - 16z^2) + (-22x^2 + 9y^3 - z^4)$

27.  $(x + y^5 + z - 1) + (x^2 + 9y^5 + 3z + 2)$

28.  $(9x^2 + 4y^3 - 7z^2) + (8x^2 + y^2 - 4z^2 + 2)$

29.  $(-a + b + c) + (-a + b - 2c)$

30.  $(2d^2 - 29e^2 - 28f) + (23d^2 + 32e^2 + 16f)$

**Subtract algebraically. (6.3)**

31.  $(17x + 13y^5 + 8z - 1) - (x^2 + 3y^5 + 6z + 8)$

32.  $(x^2 + 4y^3 - 6z^2) - (4x^2 + 2y^2 - 28z^2 + 2)$

33.  $(-3a + 2b + 17c) - (-8a + 16b - 4c)$

34.  $(d^2 - 12e^2 - 16f) - (12d^2 + 18e^2 + 15f)$

35.  $(3x^2 - 4y - 15z^2 + 1) - (-4x^2 + y - z^2 + 19)$

36.  $(3x^2 + 5y^3 - 6z^2) - (2x^2 + 5y^2 - 4z^2)$

37.  $(4x + 6y^3 - 3z^2) - (2x - y^3 + 9z^2)$

38.  $(a^3 + 7b^4 + 4c) - (-5a^3 + 8b^4 + 16c)$

39.  $(-4r^2 - 7s - 7t^4) - (6r^2 - s - 13t^4)$

40.  $(2x - y^3 + 22z^5 + 15) - (3x + 7y^3 + 8z^5 + 2)$

41.  $(-3c + b^2 - 2c^2 + 18) - (2c^2 + 3b^2 - 4c - 21)$

42.  $(5p + 8q^3 - 3r^2) - (-7p + 39q^3 + 2r^2)$

43.  $(3x + 7y^2 + 4z^2 + 29) - (x + y^2 + 5z^2 + 4)$

44.  $(-x^2 - 57y^3 - 56z^2) - (-x^2 + 39y^3 - 28z^4)$

45.  $(7x + 2y^5 + 7z - 5) - (2x^2 + 8y^5 + 3z + 2)$

46.  $(9x^2 + 6y^3 - 7z^2) - (3x^2 + 4y^2 - 5z^2 + 1)$

**Find the product. (6.4)**

47.  $(2a - 3b)(12a - 4b)$

48.  $(p + 3q)(2p - q)$

49.  $(3a + 2)(5a - 3)$

50.  $(2x - 8y)(8x - 2y)$

51.  $(8a - 13b)(13a + 2b)$

52.  $(13x^2 + 17)(12x^2 - 14)$

53.  $(x + 17)(x^2 - 15x + 14)$

54.  $(25x^2 - 18x - 12)(x + 19)$

55.  $(4x^2 - 3x + 8)(4x - 1)$

56.  $(-14x^2 - 19x - 26)(x^2 - 4x)$

57.  $(-6y^2 - 7y)(2y^3 + 18y^2 + y)$

58.  $(2a^3 + 3a^2)(a^3 + 4a^2 + a)$

59.  $(5x^2 + x - 7)(5x^2 + 17x - 7)$

60.  $(4x^2 + x - 1)(-x^2 + 5x + 6)$

61.  $(3y^2 + y - 2)(-3y^2 - 2y + 7)$

62.  $(c^3 - 7c^2 + c)(6c^3 + c^2 - 2c)$

63.  $(22a - b)(a - 4b)$

64.  $(33p + 38q)(p - 2q)$

65.  $(2a + 6)(8a - 8)$

66.  $(5x - 8y)(8x - 4y)$

67.  $(8a - 8b)(a + 2b)$

68.  $(x^2 + 27)(x^2 - 1)$

69.  $(2x + 2)(3x^2 - 2x + 14)$

70.  $(7x^2 - x - 8)(2x + 2)$

71.  $(4x^2 - 3x + 5)(7x - 1)$

72.  $(-7x^2 - x - 5)(2x^2 - 9x)$

73.  $(-y^2 - 7y)(2y^3 + 3y^2 + 4y)$