

Test Bank for Finite Mathematics 12th Lial

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Perform the indicated operation.

1) $(6x^2 - 5x - 7) + (-3x^2 - 2x + 10)$

A) $-3x^2 + 7x + 3$

B) $3x^2 - 7x + 3$

C) $9x^2 - 7x - 17$

D) $9x^2 - 7x + 17$

Answer: B

2) $(7n^6 - 5n^4 - 9) - (2n^6 - 7n^4 - 20)$

A) $5n^6 + 2n^4 - 29$

B) $18n^{10}$

C) $5n^6 - 3n^4 - 29$

D) $5n^6 + 2n^4 + 11$

Answer: D

3) $(6m^7 - 3m^5 + 9m) + (7m^7 + 8m^5 + 7m)$

A) $16m^7 + 14m^5 + 4m$

B) $34m^{13}$

C) $13m + 5m^7 + 16m^5$

D) $13m^7 + 5m^5 + 16m$

Answer: D

4) $(9q^2 - 7q - q^3 + 4) - (3q^2 - 7q - q^3 + 7)$

A) $6q^2 - 14q - 11$

B) $5q^2 - 2q^3 + 3$

C) $5q^2 - 11$

D) $6q^2 - 3$

Answer: D

5) $(6p^2 + 7p - p^3 + 4) - (3p^2 - 2p - p^3 + 6)$

A) $2p^2 + 5p - 10$

B) $3p^2 + 9p - 2$

C) $3p^2 - 9p - 10$

D) $2p^2 - 2p^3 + 5p - 2$

Answer: B

6) $(6r^4 + 9r^2 - 6r) - (-8r^3 + 5r^2 - 6r - 4)$

A) $7r^4 + 9r^3 + 14r^2 + 4$

B) $13r^7 + 14r^3$

C) $6r^4 + 8r^3 + 4r^2 + 4$

D) $6r^4 - 8r^3 + 14r^2 - 4$

Answer: C

7) $(8k^5 - 2k^4 + 8k^3 + 3) + (7k^5 - 5k^4 + 5k^3 + 1)$

A) $-2k^5 - 2k^4 + 9k^3 + 5$

C) $15k^5 - 7k^4 + 13k^3 + 4$

B) $21k^{24} + 4$

D) $15k^{10} - 7k^8 + 13k^6 + 4$

Answer: C

8) $(9y^4 - 2y^3 + 3y^2 + 5) - (3y^4 - 4y^3 - 6y^2 + 4)$

A) $12y^4 - 6y^3 - 3y^2 + 9$

C) $6y^4 - 6y^3 - 3y^2 + 9$

B) $6y^4 + 2y^3 + 9y^2 + 1$

D) $12y^4 - 6y^3 - 3y^2 + 1$

Answer: B

9) $2(q^2 - 4q + 1) + 4(1q^2 + q - 3)$

A) $6q^2 + 4q - 10$

B) $6q^2 - 4q - 10$

C) $6q^2 + 12q + 10$

D) $3q^2 + 12q + 10$

Answer: B

10) $0.78(6x^2 + 3x - 1) - (7.01x^2 - 5x + 5.777)$

A) $-2.33x^2 - 2x - 6.557$

C) $-1.01x^2 + 8x - 6.777$

B) $-2.33x^2 + 7.34x - 6.557$

D) $-1.01x^2 + 7.34x - 6.557$

Answer: B

- 11) $2p(6p^2 + 7p - 1)$
 A) $12p^3 + 7p^2 - 2p$ B) $12p^3 + 14p^2 - 2p$ C) $12p^3 + 12p^2$ D) $12p^3 + 14p^2 - 1p$
 Answer: B
- 12) $-11m(4m^2 + 7m - 9)$
 A) $-44m^2 - 77m + 99$ B) $44m^3 + 77m^2 - 99m$
 C) $-44m^3 - 77m + 99$ D) $-44m^3 - 77m^2 + 99m$
 Answer: D
- 13) $-11y^2(-11y^2 + 4y + 12)$
 A) $121y^3 - 44y^2 - 132y$ B) $121y^4 - 44y^3 - 132y^2$
 C) $-121y^4 + 44y^3 + 132y^2$ D) $121y^4 - 44y^2 - 132y$
 Answer: B
- 14) $(2x + 7)(x - 1)$
 A) $x^2 - 7x + 5$ B) $x^2 + 5x + 4$ C) $2x^2 + 5x - 7$ D) $2x^2 + 4x - 7$
 Answer: C
- 15) $(4k + 1)(k - 4)$
 A) $4k^2 - 15k - 15$ B) $4k^2 - 15k - 4$ C) $4k^2 - 4k - 15$ D) $4k^2 - 17k - 4$
 Answer: B
- 16) $(m - 10)(2m + 3)$
 A) $2m^2 - 17m - 30$ B) $2m^2 - 30m - 17$ C) $2m^2 - 19m - 30$ D) $2m^2 - 17m - 17$
 Answer: A
- 17) $(-2p + 12)(5p - 1)$
 A) $3p^2 + 62p - 12$ B) $3p^2 + 62p + 62$ C) $-10p^2 + 62p + 62$ D) $-10p^2 + 62p - 12$
 Answer: D
- 18) $(x + 10y)(x + 9y)$
 A) $x + 19xy + 90y$ B) $x^2 + 16xy + 90y^2$ C) $x^2 + 19xy + 90y^2$ D) $x^2 + 19xy + 19y^2$
 Answer: C
- 19) $(a + 6b)(-2a - 8b)$
 A) $a^2 - 20ab - 48b^2$ B) $-2a^2 - 20ab - 48b^2$ C) $a^2 - 20ab - 20b^2$ D) $-2a^2 - 20ab - 20b^2$
 Answer: B
- 20) $(4x + 10)(4x - 10)$
 A) $16x^2 - 100$ B) $4x^2 - 80x - 100$ C) $16x^2 + 80x - 100$ D) $16x^2 - 80x - 100$
 Answer: A
- 21) $(4r - 9)(4r - 9)$
 A) $16r^2 - 72r + 81$ B) $4r^2 - 73r + 81$ C) $4r^2 - 72r - 73$ D) $16r^2 + 81r - 72$
 Answer: A

$$22) \left(q + \frac{4}{3} \right) \left(q + \frac{3}{4} \right)$$

$$A) q^2 + \frac{25}{6}q + 1$$

$$B) q^2 + \frac{25}{12}q + 1$$

$$C) 2q^2 + \frac{25}{12}q + 1$$

$$D) q^2 + 1$$

Answer: B

$$23) \left(\frac{5}{3}m - 1 \right) \left(\frac{1}{3}m - 1 \right)$$

$$A) \frac{5}{9}m^2 - 2m + 1$$

$$B) \frac{5}{3}m^2 - 2m + 2$$

$$C) \frac{5}{3}m^2 - 2m + 1$$

$$D) \frac{5}{6}m^2 - 2m + 1$$

Answer: A

$$24) (x + 4)(x^2 - x + 7)$$

$$A) x^3 + 28$$

$$B) x^3 + 3x^2 + 28$$

$$C) x^3 + 5x^2 + 11x + 28$$

$$D) x^3 + 3x^2 + 3x + 28$$

Answer: D

$$25) (m - 3)(7m^2 + m + 7)$$

$$A) 7m^3 + 20m^2 + 4m - 21$$

$$B) 7m^3 - 20m^2 + 10m - 21$$

$$C) 7m^3 - 20m^2 + 4m - 21$$

$$D) 7m^3 - 22m^2 + 4m - 21$$

Answer: C

$$26) (4r + 4)(3r^3 - 5r^2 - 2r + 5)$$

$$A) 12r^4 - 8r^3 - 28r^2 + 12r + 20$$

$$B) 12r^4 - 8r^3 - 16r^2 + 12r + 20$$

$$C) 12r^4 - 40r^3 - 28r^2 + 12r + 20$$

$$D) 12r^4 - 8r^3 - 28r^2 + 20r + 20$$

Answer: A

$$27) (4x - 8y)(2x - 9y + 1)$$

$$A) 8x^2 - 16xy + 4x + 72y^2 - 8y$$

$$B) 8x^2 - 52xy - 52y^2$$

$$C) 8x^2 - 52xy + 4x + 72y^2 - 8y$$

$$D) 8x^2 - 36xy + 4x + 72y^2$$

Answer: C

$$28) (5a^2 - 3b)(4a^2 + 11b + c)$$

$$A) 20a^4 + 43a^2b - 33b^4 + 5a^2bc$$

$$B) 20a^4 + 43a^2b^2 - 33b^2$$

$$C) 20a^2 + 43ab + 5a^2c - 33b^2 - 3c$$

$$D) 20a^4 + 43a^2b + 5a^2c - 33b^2 - 3bc$$

Answer: D

$$29) (2x^2 + 3x + 4)(x^2 + 5x - 4)$$

$$A) 2x^4 + 13x^3 + 11x^2 + 8x - 16$$

$$B) 2x^4 + 10x^3 + 11x^2 + 8x - 16$$

$$C) 2x^4 + 10x^3 + 7x^2 + 8x - 16$$

$$D) 2x^4 + 13x^3 + 7x^2 + 8x - 16$$

Answer: A

$$30) (x + 5)(x + 2)(x - 5)$$

$$A) x^3 - 50$$

$$B) x^3 + 12x^2 + 45x + 50$$

$$C) x^3 + 25x^2 + 2x + 50$$

$$D) x^3 + 2x^2 - 25x - 50$$

Answer: D

31) $(n + 16)^2$

A) $n^2 + 32n + 256$

B) $n + 256$

C) $256n^2 + 32n + 256$

D) $n^2 + 256$

Answer: A

32) $(2x - 9y)^2$

A) $2x^2 + 81y^2$

B) $4x^2 + 81y^2$

C) $2x^2 - 36xy + 81y^2$

D) $4x^2 - 36xy + 81y^2$

Answer: D

33) $(2a - b)^3$

A) $8a^3 - 4a^2b + 2ab^2 - b^3$

B) $8a^3 - 12a^2b + 6ab^2 - b^3$

C) $8a^3 - 12a^2b - 6ab^2 - b^3$

D) $8a^3 - b^3$

Answer: B

Factor out the greatest common factor.

34) $2a^6 + 8a^4$

A) $8(a^2 + 4a)$

B) $a^4(2a^2 + 8)$

C) $2(a^6 + 4a^4)$

D) $2a^4(a^2 + 4)$

Answer: D

35) $4x^3 - 8x^2 + 6x$

A) $2(2x^3 - 4x^2 + 3x)$

B) $4x(x^2 - 2x + 3)$

C) $2x(2x^2 - 4x + 3)$

D) $2x(2x^2 - 8x^2 + 6x)$

Answer: C

36) $6m^6 - 27m^4 + 15m^2$

A) $m^2(6m^4 - 27m^2 + 15)$

B) $3(2m^6 - 9m^4 + 5m^2)$

C) no common factor

D) $3m^2(2m^4 - 9m^2 + 5)$

Answer: D

37) $72m^7 + 48m^4 - 40m^2$

A) $8(9m^7 + 6m^4 - 5m^2)$

B) $m^2(72m^5 + 48m^2 - 40)$

C) $8m^2(9m^5 + 6m^2 - 5)$

D) no common factor

Answer: C

38) $18x^4y^3 - 4x^3y^2 + 8x^2y$

A) $2x^2y^2(9x^2y - 2x + 4)$

B) $2x^2y(9x^2y^2 - 2xy + 4)$

C) $2xy(9x^3y^2 - 2x^2y + 4x)$

D) $2(9x^4y^3 - 2x^3y^2 + 4x^2y)$

Answer: B

39) $8x^9y^9 + 36x^6y^7 + 20x^2y^4$

A) $4x^2(2x^7y^9 + 9x^4y^7 + 5y^4)$

B) $4(2x^9y^9 + 9x^6y^7 + 5x^2y^4)$

C) no common factor

D) $4x^2y^4(2x^7y^5 + 9x^4y^3 + 5)$

Answer: D

40) $24x^9y^8 - 64x^3y^6 + 48x^6y^2$

A) $8(3x^9y^8 - 8x^3y^6 + 6x^6y^2)$

C) $8x^3y^2(3x^6y^6 - 8y^4 + 6x^3)$

Answer: C

B) no common factor

D) $8x^3(3x^6y^8 - 8y^6 + 6x^3y^2)$

41) $25m^2 - 14r^3$

A) $3(8m^2 - 4r^3)$

B) $m^2(25 - 14m)$

C) no common factor

D) $2(12m^2 + 7r^3)$

Answer: C

Factor completely. State that the polynomial is prime if it cannot be factored.

42) $x^2 + 4x - 45$

A) $(x + 9)(x - 5)$

B) $(x - 9)(x + 1)$

C) prime

D) $(x - 9)(x + 5)$

Answer: A

43) $x^2 - 7x - 30$

A) $(x - 3)(x + 1)$

B) prime

C) $(x + 3)(x - 10)$

D) $(x - 3)(x + 10)$

Answer: C

44) $x^2 + 6x + 8$

A) $(x + 8)(x + 6)$

B) $(x - 2)(x - 4)$

C) $(x + 2)(x + 4)$

D) $(x + 8)(x - 1)$

Answer: C

45) $x^2 - 7x + 12$

A) $(x + 4)(x - 3)$

B) $(x - 4)(x + 3)$

C) $(x + 4)(x + 3)$

D) $(x - 4)(x - 3)$

Answer: D

46) $x^2 - x - 45$

A) $(x - 5)(x + 9)$

B) $(x + 5)(x - 9)$

C) $(x - 45)(x + 1)$

D) prime

Answer: D

47) $6x^2 - 23x - 35$

A) $(x - 7)(x - 5)$

B) $(6x + 7)(x - 5)$

C) $(7x + 6)(x - 5)$

D) $(x + 6)(x - 5)$

Answer: B

48) $7x^2 - 64x + 64$

A) $(7x + 56)(7x - 8)$

B) $(7x - 8)(x - 8)$

C) $(7x - 8)(x + 8)$

D) $(8 - 7x)(7x - 8)$

Answer: B

49) $8z^2 + 6z - 9$

A) $(2z + 3)(4z - 3)$

B) $(2z - 3)(4z + 3)$

C) prime

D) $(8z + 3)(z - 3)$

Answer: A

50) $u^2 - 2uv - 8v^2$

A) $(u - 2v)(u + 4v)$

B) $(u + 2v)(u - 4v)$

C) $(u - 2v)(u + v)$

D) prime

Answer: B

- 51) $x^2 - 12xy + 27y^2$
 A) $(x + 9y)(x - 3y)$ B) prime C) $(x - 9y)(x - 3y)$ D) $(x - 27y)(x - y)$
 Answer: C
- 52) $6x^2 - 7xt - 3t^2$
 A) prime B) $(3x + t)(2x - 3t)$ C) $(6x + t)(x - 3t)$ D) $(3x - t)(2x + 3t)$
 Answer: B
- 53) $6m^2 - 19mn + 10n^2$
 A) $(2mn + 5)(3mn + 2)$ B) $(2m - 5n)(3m + 2n)$ C) $(2mn - 5)(3mn - 2)$ D) $(2m - 5n)(3m - 2n)$
 Answer: D
- 54) $8x^2 - 8x - 48$
 A) $8(x + 2)(x - 3)$ B) $8(x - 2)(x + 3)$ C) prime D) $(8x + 16)(x - 3)$
 Answer: A
- 55) $21x^2 - 91x - 70$
 A) $(21x + 14)(x - 5)$ B) prime C) $7(3x + 2)(x - 5)$ D) $7(3x - 2)(x + 5)$
 Answer: C
- 56) $4y^2 + 18y - 10$
 A) $(4y - 2)(y + 5)$ B) $2(2y + 1)(y - 5)$ C) $2(2y - 1)(y + 5)$ D) prime
 Answer: C
- 57) $5x^2 - 15xy - 20y^2$
 A) prime B) $5(x - y)(x + 4y)$ C) $(5x - 5y)(x + 4y)$ D) $5(x + y)(x - 4y)$
 Answer: D
- 58) $4y^3 - 4y^2 - 80y$
 A) $(y - 4)(4y^2 + 20)$ B) $4y(y - 4)(y + 5)$ C) $4y(y + 4)(y - 5)$ D) $(4y^2 + 16y)(y - 5)$
 Answer: C
- 59) $15x^3 - 65x^2 - 50x$
 A) $x(3x + 2)(5x - 25)$ B) $5x(3x + 2)(x - 5)$ C) $5(3x - 2)(x + 5)$ D) $(x^2 - 5)(15x + 10)$
 Answer: B
- 60) $72x^2 + 42xy + 6y^2$
 A) $6(3x - y)(4x - y)$ B) $(18x + 6y)(4x + y)$ C) prime D) $6(3x + y)(4x + y)$
 Answer: D
- 61) $x^3 + 6x^2 - 7x$
 A) $x(x - 7)(x - 1)$ B) $x(x + 7)(x - 1)$ C) $x(x + 7)(x + 1)$ D) $x(x^2 + 6x - 7)$
 Answer: B
- 62) $a^3b - 9a^2b^2 + 14ab^3$
 A) $a(ab - 2)(ab - 7)$ B) $ab(a - 2b)(a + 7b)$ C) $ab(a - 2b)(a - 7b)$ D) $ab(a - 14b)(a - b)$
 Answer: C

63) $5x^3 + 20x^2y - 225xy^2$

A) $5x(x + 5y)(x - 9y)$

B) $5xy(x - 5y)(x + 9y)$

C) $5(x - 5y)(x + 9y)$

D) $5x(x - 5y)(x + 9y)$

Answer: D

64) $12x^4 + 50x^3y + 50x^2y^2$

A) $2x^2(2x + 1)(3x + 25)$

B) $2x^2y^2(2x + 5)(3x + 5)$

C) $2x^2(2x + 5y)(3x + 5y)$

D) $2xy(2x + 1)(3x + 25)$

Answer: C

65) $25x^2 - 81$

A) $(5x - 9)^2$

B) $(5x + 9)^2$

C) prime

D) $(5x + 9)(5x - 9)$

Answer: D

66) $25k^2 - 49m^2$

A) prime

B) $(5k - 7m)^2$

C) $(5k + 7m)^2$

D) $(5k + 7m)(5k - 7m)$

Answer: D

67) $25y^4 - 81$

A) $(5y^2 + 9)^2$

B) $(5y^2 - 9)^2$

C) prime

D) $(5y^2 + 9)(5y^2 - 9)$

Answer: D

68) $100s^2 - 169t^4$

A) $(10s - 13t^2)^2$

B) $(10s + 13t^2)^2$

C) prime

D) $(10s + 13t^2)(10s - 13t^2)$

Answer: D

69) $108a^4 - 75b^2$

A) $3(6a^2 + 5b)(6a^2 - 5b)$

B) $3(6a^2 - 5b)^2$

C) prime

D) $3(6a^2 + 5b)^2$

Answer: A

70) $18a^4b - 50b^3$

A) $2b(3a^2 + 5b)(3a^2 - 5b)$

B) $2b(3a + 5b)^2$

C) $2b(3a - 5b)^2$

D) prime

Answer: A

71) $25x^2 + 16$

A) $(5x - 4)^2$

B) $(5x + 4)(5x - 4)$

C) prime

D) $(5x + 4)^2$

Answer: C

72) $25x^4 - 36y^4$

A) prime

B) $(5x^2 - 6y^2)(5x^2 + 6y^2)$

C) $-11x^4$

D) $(5x - 6y)(5x + 6y)(5x^2 + 6y^2)$

Answer: B

73) $25pm^4 - 25pn^4$

A) $25p(m^2 + n^2)(m + n)(m - n)$

C) $25(m^2p + n^2)(mp + n)(mp - n)$

Answer: A

B) $25p(m^2 - n^2)^2$

D) $p(5m^2 + n^2)(5m + n)(5m - n)$

74) $x^4 - 1$

A) prime

C) $(x + 1)^2(x - 1)^2$

Answer: D

B) $(x^2 - 1)(x + 1)(x - 1)$

D) $(x^2 + 1)(x + 1)(x - 1)$

75) $x^2 + 24x + 144$

A) $(x + 12)(x - 12)$

B) $(x + 12)^2$

C) $(x - 12)^2$

D) prime

Answer: B

76) $25x^2 - 70x + 49$

A) $(5x - 7)^2$

B) $(5x - 7)(5x + 7)$

C) $(5x + 7)^2$

D) Prime

Answer: A

77) $x^2 - 12xy + 36y^2$

A) $(x - 6y)(x + 6y)$

B) $(x - 6y)^2$

C) $(x + 6y)^2$

D) prime

Answer: B

78) $x^2 - 20x + 400$

A) $(x - 20)^2$

B) prime

C) $(x + 20)^2$

D) $(x + 20)(x - 20)$

Answer: B

79) $343x^2 + 294x + 63$

A) $7(7x + 3)^2$

B) $7(7x - 3)(7x + 3)$

C) $7(49x^2 + 42x + 9)$

D) $(49x + 21)(7x + 3)$

Answer: A

80) $343x^2 - 490xy + 175y^2$

A) $(49x - 35y)(7x - 5y)$

C) $7(7x + 5y)(7x - 5y)$

Answer: B

B) $7(7x - 5y)^2$

D) $7(49x^2 - 70xy + 25y)$

Factor completely.

81) $1,000p^3 - 1$

A) $(10p - 1)(100p^2 + 10p + 1)$

C) $(10p - 1)(100p^2 + 1)$

Answer: A

B) $(1,000p - 1)(p^2 + 10p + 1)$

D) $(10p + 1)(100p^2 - 10p + 1)$

82) $x^3 - 343$

A) $(x + 343)(x^2 - 1)$

B) $(x - 7)(x^2 + 49)$

C) $(x - 7)(x^2 + 7x + 49)$

D) $(x + 7)(x^2 - 7x + 49)$

Answer: C

83) $216y^3 - 343$

A) $(216y - 7)(y^2 + 42y + 49)$

C) $(6y + 7)(36y^2 - 42y + 49)$

Answer: B

B) $(6y - 7)(36y^2 + 42y + 49)$

D) $(6y - 7)(36y^2 + 49)$

84) $125a^3 - 64b^3$

A) $(5a + 4b^2)(25a^2 - 20ab + 16b^2)$

C) $(5a - 4b)(25a^2 + 20ab + 16b^2)$

Answer: C

B) $(125a - 4b)(a^2 + 20ab + 16b^2)$

D) $(5a - 4b)(25a^2 + 16b^2)$

85) $24k^3m - 81m^4$

A) $3m(2k - 3m)(4k^2 + 6km + 9m^2)$

C) $3m(8k - 3m)(k^2 + 6km + 9m^2)$

Answer: A

B) $3m(2k + 3m^2)(4k^2 - 6km + 9km^2)$

D) $(6km - 9m^2)(4k^2 + 9m^2)$

86) $729s^3 + 1$

A) $(9s + 1)(81s^2 - 9s + 1)$

C) $(9s - 1)(81s^2 + 9s + 1)$

Answer: A

B) $(729s + 1)(s^2 - 9s + 1)$

D) $(9s + 1)(81s^2 + 1)$

87) $t^3 + 125$

A) $(t - 5)(t^2 + 5t + 25)$

B) $(t + 5)(t^2 - 5t + 25)$

C) $(t + 5)(t^2 + 25)$

D) $(t - 125)(t^2 - 1)$

Answer: B

88) $8c^3 + 27$

A) $(2c + 3)(4c^2 + 9)$

C) $(2c - 3)(4c^2 + 6c + 9)$

Answer: D

B) $(8c + 3)(c^2 - 6c + 9)$

D) $(2c + 3)(4c^2 - 6c + 9)$

Write the expression in lowest terms.

89) $\frac{8k}{10}$

A) $\frac{4}{5}$

B) $-\frac{8k}{10}$

C) $\frac{5}{4k}$

D) $\frac{4k}{5}$

Answer: D

90) $\frac{24k^3}{6k}$

A) $4k^2$

B) 18

C) $4k$

D) $18k^2$

Answer: A

91) $\frac{(2x - 9)}{-(9 - 2x)}$

A) $\frac{9 - 2x}{-9 + 2x}$

B) 1

C) -1

D) $\frac{2x - 9}{-9x + 2}$

Answer: B

$$92) \frac{(y+9)(y-2)}{(y-2)(y+6)}$$

$$A) \frac{2y-2}{2y+4}$$

$$B) \frac{y-9}{y-6}$$

$$C) \frac{y+2}{y+4}$$

$$D) \frac{y+9}{y+6}$$

Answer: D

$$93) \frac{a^2 - 3a}{(a+4)(a-3)}$$

$$A) \frac{1}{a+4}$$

$$B) \frac{a}{a+4}$$

$$C) \frac{a^2}{a+4}$$

$$D) \frac{a-3}{a+4}$$

Answer: B

$$94) \frac{2x+2}{10x^2+14x+4}$$

$$A) \frac{2x+2}{10x^2+14x+4}$$

$$B) \frac{2x+5}{5x+14}$$

$$C) \frac{2x}{5x+2}$$

$$D) \frac{1}{5x+2}$$

Answer: D

$$95) \frac{y^2 - 5y - 14}{y^2 - 3y - 28}$$

$$A) - \frac{y^2 - 5y - 14}{y^2 - 3y - 28}$$

$$B) \frac{-5y - 14}{-3y - 28}$$

$$C) \frac{-5y - 1}{-3y - 2}$$

$$D) \frac{y+2}{y+4}$$

Answer: D

$$96) \frac{y^2 + 2y - 15}{y^2 - 3y - 40}$$

$$A) - \frac{y^2 + 2y - 15}{y^2 - 3y - 40}$$

$$B) \frac{2y - 15}{-3y - 40}$$

$$C) \frac{2y - 3}{-3y - 8}$$

$$D) \frac{y-3}{y-8}$$

Answer: D

$$97) \frac{a^2 - 25}{a^2 + 7a + 10}$$

$$A) \frac{a-5}{a-2}$$

$$B) \frac{a+5}{a-2}$$

$$C) \frac{a-5}{a+2}$$

$$D) \frac{a+5}{a+2}$$

Answer: C

$$98) \frac{4 - k^2}{k^2 + 4k - 12}$$

$$A) - \frac{k-2}{k+6}$$

$$B) \frac{k+2}{k+6}$$

$$C) - \frac{k+2}{k-6}$$

$$D) - \frac{k+2}{k+6}$$

Answer: D

Perform the indicated operation and simplify.

$$99) \frac{2x^2}{4} \cdot \frac{28}{x^3}$$

$$A) \frac{56x^2}{4x^3}$$

$$B) \frac{14x^2}{x^3}$$

$$C) \frac{x}{14}$$

$$D) \frac{14}{x}$$

Answer: D

$$100) \frac{7p-7}{p} \cdot \frac{6p^2}{9p-9}$$

$$A) \frac{3}{14p}$$

$$B) \frac{42p^3 - 42p^2}{9p^2 - 9p}$$

$$C) \frac{14p}{3}$$

$$D) \frac{63p^2 + 126p + 63}{6p^3}$$

Answer: C

$$101) \frac{2x^2}{4} \div \frac{x^3}{32}$$

$$A) \frac{64x^2}{4x^3}$$

$$B) \frac{16x^2}{x^3}$$

$$C) \frac{x}{16}$$

$$D) \frac{16}{x}$$

Answer: D

$$102) \frac{5p-5}{p} \div \frac{10p-10}{5p^2}$$

$$A) \frac{2}{5p}$$

$$B) \frac{25p^3 - 25p^2}{10p^2 - 10p}$$

$$C) \frac{50p^2 + 100p + 50}{5p^3}$$

$$D) \frac{5p}{2}$$

Answer: D

$$103) \frac{k^2 + 10k + 16}{k^2 + 14k + 48} \cdot \frac{k^2 + 6k}{k^2 + 9k + 14}$$

$$A) \frac{k}{k^2 + 14k + 48}$$

$$B) \frac{1}{k+7}$$

$$C) \frac{k}{k+7}$$

$$D) \frac{k^2 + 6k}{k+7}$$

Answer: C

$$104) \frac{k^2 + 13k + 40}{k^2 + 8k + 15} \cdot \frac{k^2 + 7k + 12}{k^2 + 12k + 32}$$

$$A) 1$$

$$B) \frac{k+8}{k+3}$$

$$C) \frac{1}{k+4}$$

$$D) \frac{k+3}{k+4}$$

Answer: A

$$105) \frac{x^2 - y^2}{(x+y)^2} \cdot \frac{x+y}{x-y}$$

$$A) 1$$

$$B) x - y$$

$$C) x^2 - y$$

$$D) \frac{1}{x+y}$$

Answer: A

$$106) \frac{z^2 + 8z + 12}{z^2 + 13z + 42} \div \frac{z^2 + 2z}{z^2 + 10z + 21}$$

A) $z + 3$

B) $\frac{z + 3}{z}$

C) $\frac{z + 3}{z^2 + 7z}$

D) $\frac{z}{z^2 + 13z + 42}$

Answer: B

$$107) \frac{36x^2 - 1}{x^2 - 36} \div \frac{6x - 1}{x + 6}$$

A) $\frac{(6x - 1)(36x^2 - 1)}{(x^2 + 6)(x + 6)}$

B) $\frac{x - 6}{6x + 1}$

C) $\frac{6x - 1}{x + 6}$

D) $\frac{6x + 1}{x - 6}$

Answer: D

$$108) \frac{x^2 - 25}{x^2 - 8x + 16} \div \frac{10x - 50}{x^2 - x - 12}$$

A) $\frac{(x - 5)(x + 3)}{10(x - 4)}$

B) $\frac{(x + 5)(x + 3)}{10(x - 4)}$

C) $\frac{10(x + 5)}{(x + 3)(x - 4)}$

D) $x + 3$

Answer: B

Perform the indicated operations and simplify.

$$109) \frac{3}{11x} + \frac{2}{11x}$$

A) 1

B) $\frac{5}{11x}$

C) $\frac{11x}{5}$

D) $\frac{5}{22x}$

Answer: B

$$110) \frac{8}{r} + \frac{9}{r - 3}$$

A) $\frac{24r - 17}{r(3 - r)}$

B) $\frac{17r - 24}{r(r - 3)}$

C) $\frac{24r - 17}{r(r - 3)}$

D) $\frac{17r - 24}{r(3 - r)}$

Answer: B

$$111) \frac{5}{r} + \frac{8}{r - 8}$$

A) $\frac{40r - 13}{r(8 - r)}$

B) $\frac{40r - 13}{r(r - 8)}$

C) $\frac{13r - 40}{r(r - 8)}$

D) $\frac{13r - 40}{r(8 - r)}$

Answer: C

$$112) \frac{m - 2}{m^2 + 5m - 24} + \frac{2m + 7}{m^2 + 2m - 15}$$

A) $3m + 5$

B) $\frac{3m^2 + 26m + 46}{(m - 3)(m + 8)(m + 5)}$

C) $\frac{3m + 5}{2m^2 + 7m - 39}$

D) $\frac{3m^2 + 26m + 46}{(m + 3)(m - 8)(m - 5)}$

Answer: B

$$113) \frac{2}{y^2 - 3y + 2} + \frac{6}{y^2 - 1}$$

$$A) \frac{24y - 10}{(y - 1)(y + 1)(y - 2)}$$

$$B) \frac{8y - 10}{(y - 1)(y - 2)}$$

$$C) \frac{8y - 10}{(y - 1)(y + 1)(y - 2)}$$

$$D) \frac{10y - 8}{(y - 1)(y + 1)(y - 2)}$$

Answer: C

$$114) \frac{x}{x^2 - 16} - \frac{3}{x^2 + 5x + 4}$$

$$A) \frac{x^2 - 2x + 12}{(x - 4)(x + 4)(x + 1)}$$

$$B) \frac{x^2 - 2x + 12}{(x - 4)(x + 4)}$$

$$C) \frac{x^2 + 2x + 12}{(x - 4)(x + 4)(x + 1)}$$

$$D) \frac{x^2 - 2}{(x - 4)(x + 4)(x + 1)}$$

Answer: A

$$115) \frac{6}{z^2} - \frac{9}{z}$$

$$A) \frac{3(2z + 3)}{z^2}$$

$$B) \frac{3(2 - 3z)}{z^2}$$

$$C) \frac{3(2 + 3z)}{z^2}$$

$$D) \frac{3(3z - 2)}{z}$$

Answer: B

$$116) \frac{2ab}{a^2 - b^2} - \frac{b}{a - b} + \frac{8}{2}$$

$$A) \frac{4a + 5b}{a^2 - b^2}$$

$$B) \frac{4a + 5b}{a + b}$$

$$C) \frac{2ab - b + 4}{a + b + 1}$$

$$D) \frac{(a - b)(4a + 5b)}{a^2 - b^2}$$

Answer: B

$$117) \frac{6}{3m^2 - 8mp - 3p^2} + \frac{4}{15m^2 + 2mp - p^2} - \frac{5}{5m^2 - 16mp + 3p^2}$$

$$A) \frac{49m - 13p}{(3m + p)(m - 3p)(5m - p)}$$

$$B) \frac{19m - 23p}{(3m + p)(m - 3p)(5m - p)}$$

$$C) \frac{49m - 23p}{(3m + p)(m - 3p)(5m - p)}$$

$$D) \frac{19m - 13p}{(3m + p)(m - 3p)(5m - p)}$$

Answer: B

$$118) \frac{25x}{2(5x + 1)} - \frac{1}{2x(5x + 1)} + \frac{8}{x}$$

$$A) \frac{25x^2 + 80x + 15}{2x}$$

$$B) \frac{25x^2 + 80x + 15}{10x^2 + 2x}$$

$$C) \frac{5(x + 3)}{10x^2 + 2x}$$

$$D) \frac{5(x + 3)}{2x}$$

Answer: D

Solve the equation.

$$119) 5x + 6 = 2 - 8x$$

$$A) -\frac{8}{3}$$

$$B) \frac{4}{3}$$

$$C) -\frac{4}{13}$$

$$D) \frac{8}{13}$$

Answer: C

120) $10y - 10 = 17 + y$

A) $\frac{7}{9}$

B) $\frac{7}{11}$

C) 3

D) $\frac{27}{11}$

Answer: C

121) $6x + 1 = 2x - 3$

A) 1

B) $-\frac{3}{4}$

C) -4

D) -1

Answer: D

122) $0.4x - 0.4 = 0.3x + 0.5$

A) 0.1

B) 9

C) 0.9

D) 1

Answer: B

123) $-5.6q + 1.4 = -29 - 1.8q$

A) 8

B) 5.8

C) 5.4

D) -34

Answer: A

124) $\frac{p}{4} - \frac{3p}{8} = 4$

A) 32

B) 28

C) -32

D) -28

Answer: C

125) $\frac{9}{10}z - 2z + \frac{1}{5} = \frac{4}{5}$

A) $-\frac{3}{11}$

B) $\frac{6}{7}$

C) $-\frac{10}{11}$

D) $-\frac{6}{11}$

Answer: D

126) $13(x - 52) = 26$

A) 26

B) 52

C) 54

D) 50

Answer: C

127) $9x - (7x - 1) = 2$

A) $-\frac{1}{2}$

B) $-\frac{1}{16}$

C) $\frac{1}{16}$

D) $\frac{1}{2}$

Answer: D

128) $5(8x - 1) = 20$

A) $\frac{3}{8}$

B) $\frac{19}{40}$

C) $\frac{21}{40}$

D) $\frac{5}{8}$

Answer: D

129) $(y - 6) - (y + 4) = 5y$

A) -2

B) $-\frac{1}{5}$

C) $-\frac{5}{2}$

D) $-\frac{5}{3}$

Answer: A

$$130) \frac{1}{3}(6x - 12) = \frac{1}{5}(20x - 10)$$

A) 1

B) -1

C) -8

D) $\frac{1}{8}$

Answer: B

$$131) (y - 9) - (y + 4) = 6y$$

A) $-\frac{13}{6}$

B) $-\frac{13}{4}$

C) $-\frac{5}{6}$

D) $-\frac{5}{4}$

Answer: A

$$132) \frac{1}{3}(9x - 15) = \frac{1}{4}(20x - 12)$$

A) $\frac{1}{8}$

B) 1

C) -1

D) -8

Answer: C

$$133) -9b + 9 + 7b = -3b + 14$$

A) 5

B) 14

C) -9

D) -14

Answer: A

$$134) 4[3m - (2m + 2) + 3] = 3m + 5$$

A) -15

B) 1

C) 4

D) $\frac{9}{7}$

Answer: B

Solve the equation. If the solutions involve square roots, give both the exact solutions and the approximate solutions to three decimal places.

$$135) 15d^2 + 37d + 20 = 0$$

A) $-\frac{5}{3}, -\frac{4}{5}$

B) $-\frac{3}{5}, -\frac{4}{5}$

C) $\frac{3}{5}, \frac{5}{4}$

D) $\frac{5}{3}, \frac{4}{5}$

Answer: A

$$136) 4b^2 + 12b = -9$$

A) $\frac{3}{2}, \frac{3}{2}$

B) $-\frac{2}{3}, -\frac{3}{2}$

C) $-\frac{3}{2}, -\frac{3}{2}$

D) $\frac{2}{3}, \frac{2}{3}$

Answer: C

$$137) 3k^2 - 20k - 7 = 0$$

A) -3, 7

B) $-\frac{1}{3}, 7$

C) $-\frac{1}{3}, 3$

D) $\frac{1}{20}, -\frac{1}{3}$

Answer: B

$$138) 2m^2 - 6m = 0$$

A) 0

B) 3, -3

C) -3, 0

D) 3, 0

Answer: D

139) $21n^2 + 12n = 0$

A) $\frac{4}{7}, 0$

B) $-\frac{4}{7}, 0$

C) $\frac{4}{7}, -\frac{4}{7}$

D) 0

Answer: B

140) $3m^2 + 8m + 2 = 0$

A) $\frac{-4 + \sqrt{22}}{3} \approx 0.230, \frac{-4 - \sqrt{22}}{3} \approx -2.897$

B) $\frac{-4 + \sqrt{10}}{6} \approx -0.140, \frac{-4 - \sqrt{10}}{6} \approx -1.194$

C) $\frac{-4 + \sqrt{10}}{3} \approx -0.279, \frac{-4 - \sqrt{10}}{3} \approx -2.387$

D) $\frac{-8 + \sqrt{10}}{3} \approx -1.613, \frac{-8 - \sqrt{10}}{3} \approx -3.721$

Answer: C

141) $2n^2 = -10n - 5$

A) $\frac{-5 + \sqrt{35}}{2} \approx 0.458, \frac{-5 - \sqrt{35}}{2} \approx -5.458$

B) $\frac{-10 + \sqrt{15}}{2} \approx -3.064, \frac{-10 - \sqrt{15}}{2} \approx -6.936$

C) $\frac{-5 + \sqrt{15}}{2} \approx -0.564, \frac{-5 - \sqrt{15}}{2} \approx -4.436$

D) $\frac{-5 + \sqrt{15}}{4} \approx -0.282, \frac{-5 - \sqrt{15}}{4} \approx -2.218$

Answer: C

142) $2x^2 + 10x = -3$

A) $\frac{-10 + \sqrt{19}}{2} \approx -2.821, \frac{-5 - \sqrt{19}}{4} \approx -2.340$

B) $\frac{-5 + \sqrt{19}}{2} \approx -0.321, \frac{-5 - \sqrt{19}}{2} \approx -4.679$

C) $\frac{-5 + \sqrt{31}}{2} \approx 0.284, \frac{-5 - \sqrt{31}}{2} \approx -5.284$

D) $\frac{-5 + \sqrt{19}}{4} \approx -0.160, \frac{-5 - \sqrt{19}}{4} \approx -2.340$

Answer: B

143) $x^2 - x = 12$

A) 3, 4

B) 1, 12

C) -3, -4

D) -3, 4

Answer: D

144) $x^2 + 10x - 24 = 0$

A) -12, 2

B) 12, 2

C) 12, -2

D) -12, 1

Answer: A

145) $1 + \frac{1}{x} = \frac{30}{x^2}$

A) -5, 6

B) $-\frac{1}{6}, \frac{1}{5}$

C) 5, 6

D) -6, 5

Answer: D

146) $\frac{6}{y+4} - \frac{4}{y-4} = \frac{14}{y^2 - 16}$

A) $\sqrt{26} \approx 5.099$

B) 54

C) 27

D) -27

Answer: C

$$147) \frac{2}{t} = \frac{t}{2t+6}$$

A) 6, -2

B) 0, 4

C) 0, - 3

D) No solution

Answer: A

$$148) \frac{3}{x-4} = 1 + \frac{5}{x+4}$$

A) No solution

B) -6, 8

C) -5, 8

D) 6, -8

Answer: D

$$149) \frac{2y+3}{y} = \frac{3}{2}$$

A) $\sqrt{2} \approx 1.414$

B) 0

C) 6

D) -6

Answer: D

$$150) 1 - \frac{3}{2x} = \frac{7}{4}$$

A) 2

B) $-\frac{1}{2}$

C) $\frac{1}{2}$

D) -2

Answer: D

$$151) \frac{5-a}{a} + \frac{3}{4} = \frac{7}{a}$$

A) 8

B) $\sqrt{\frac{29}{20}} \approx 1.204$

C) -4

D) -8

Answer: D

$$152) \frac{x}{2x+2} = \frac{-2x}{4x+4} + \frac{2x-3}{x+1}$$

A) 3

B) -3

C) $-\frac{12}{5}$

D) $\frac{3}{2}$

Answer: A

$$153) \frac{1}{x^2-3x+2} + \frac{4}{x^2+4x-5} = \frac{2}{x^2+3x-10}$$

A) $-\frac{1}{3}$

B) $-\frac{4}{3}$

C) $\frac{1}{7}$

D) $\frac{1}{3}$

Answer: D

$$154) \frac{6}{m+1} - \frac{5}{m-1} = \frac{-12}{m^2-1}$$

A) 6

B) 1

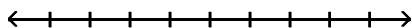
C) No solution

D) -1

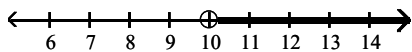
Answer: C

Write the expression in interval notation. Graph the interval.

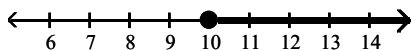
155) $x > 10$



A) $(10, \infty)$

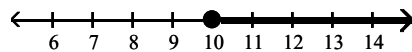


C) $[10, \infty)$

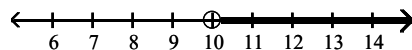


Answer: A

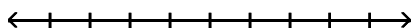
B) $[10, \infty]$



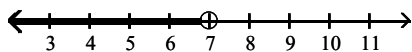
D) $(10, \infty]$



156) $x < 7$



A) $[-\infty, 7)$

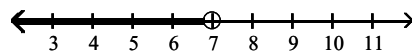


C) $(-\infty, 7]$

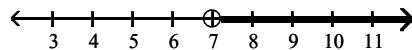


Answer: B

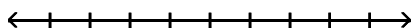
B) $(-\infty, 7)$



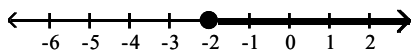
D) $(7, \infty)$



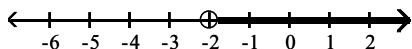
157) $x \geq -2$



A) $[-2, \infty)$

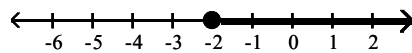


C) $(-2, \infty]$

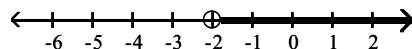


Answer: A

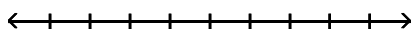
B) $[-2, \infty]$



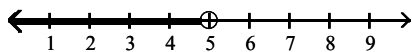
D) $(-2, \infty)$



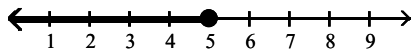
158) $x \leq 5$



A) $(-\infty, 5)$

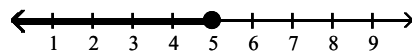


C) $(-\infty, 5]$

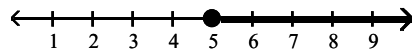


Answer: C

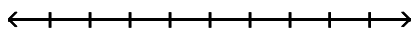
B) $[-\infty, 5]$



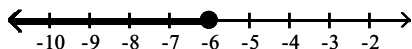
D) $[5, \infty)$



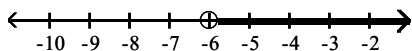
159) $-6 \geq x$



A) $(-\infty, -6]$

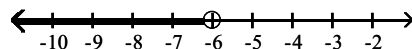


C) $(-6, \infty)$

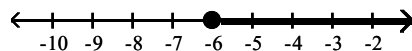


Answer: A

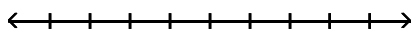
B) $[-\infty, -6)$



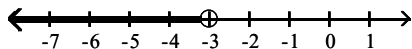
D) $[-6, \infty)$



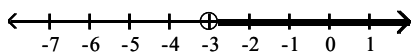
160) $-3 < x$



A) $(-\infty, -3)$

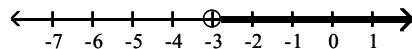


C) $(-3, \infty)$

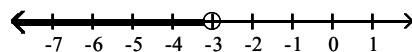


Answer: C

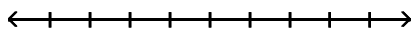
B) $(-3, \infty]$



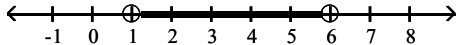
D) $[-\infty, -3)$



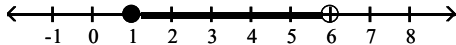
161) $1 < x < 6$



A) $(1, 6)$

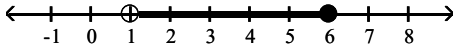


C) $[1, 6)$

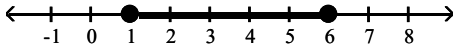


Answer: A

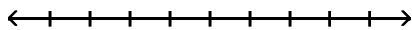
B) $(1, 6]$



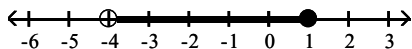
D) $[1, 6]$



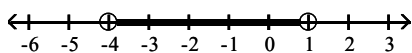
162) $-4 \leq x \leq 1$



A) $(-4, 1]$

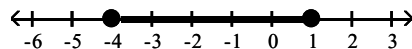


C) $(-4, 1)$

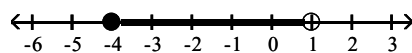


Answer: B

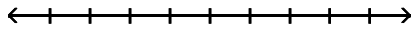
B) $[-4, 1]$



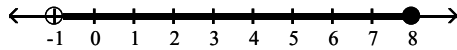
D) $[-4, 1)$



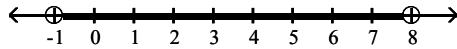
163) $-1 < x \leq 8$



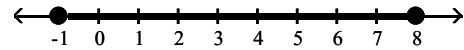
A) $(-1, 8]$



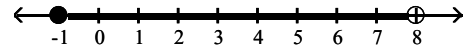
C) $(-1, 8)$



B) $[-1, 8]$



D) $[-1, 8)$



Answer: A

Using the variable x , write the interval as an inequality.

164) $(-4, 4]$

A) $-4 < x \leq 4$

B) $-4 \leq x \leq 4$

C) $x \leq 4$

D) $-4 < x < 4$

Answer: A

165) $[-4, 4)$

A) $-4 < x \leq 4$

B) $-4 \leq x \leq 4$

C) $x < 4$

D) $-4 \leq x < 4$

Answer: D

166) $[9, \infty)$

A) $x < 9$

B) $x > 9$

C) $x \leq 9$

D) $x \geq 9$

Answer: D

167) $\left(-\infty, \frac{6}{5}\right)$

A) $x > \frac{6}{5}$

B) $5 \leq x \leq 6$

C) $x \leq \frac{6}{5}$

D) $x < \frac{6}{5}$

Answer: D

168) $\left(-\infty, \frac{5}{7}\right]$

A) $x < \frac{5}{7}$

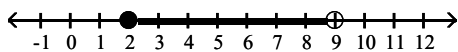
B) $x \leq \frac{5}{7}$

C) $x > \frac{5}{7}$

D) $7 \leq x \leq 5$

Answer: B

169)



A) $2 \leq x < 9$

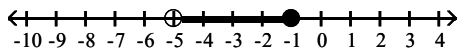
B) $2 < x \leq 9$

C) $2 \leq x \leq 9$

D) $2 < x < 9$

Answer: A

170)



A) $-5 \leq x \leq -1$

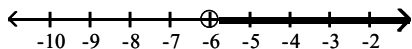
B) $-5 \leq x < -1$

C) $-5 < x < -1$

D) $-5 < x \leq -1$

Answer: D

171)



A) $x \geq -6$

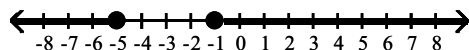
B) $x < -6$

C) $x > -6$

D) $x \leq -6$

Answer: C

172)



A) $x \leq -5$ or $x \geq -1$

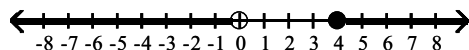
B) $x < -5$ or $x > -1$

C) $-5 < x < -1$

D) $-5 \leq x \leq -1$

Answer: A

173)



A) $x < 0$ or $x > 4$

B) $x < 0$ or $x \geq 4$

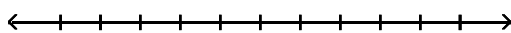
C) $0 \leq x \leq 4$

D) $0 < x \leq 4$

Answer: B

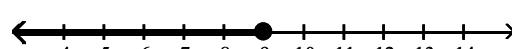
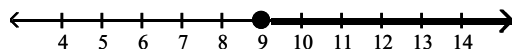
Solve the inequality and graph the solution.

174) $2x - 10 \geq 8$



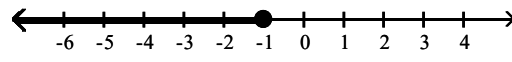
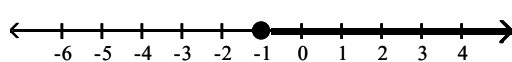
A) $[9, \infty)$

B) $(-\infty, 9]$



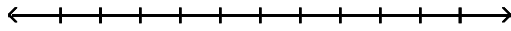
C) $[-1, \infty)$

D) $(-\infty, -1]$

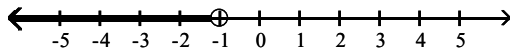


Answer: A

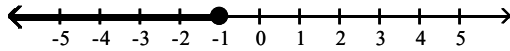
175) $9x - 6 \leq 2x - 13$



A) $(-\infty, -1)$

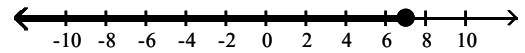


C) $(-\infty, -1]$

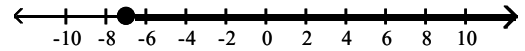


Answer: C

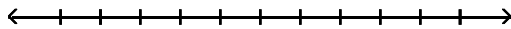
B) $(-\infty, 7]$



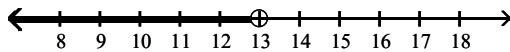
D) $[-7, \infty)$



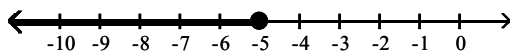
176) $-3 + 13t - 10 \geq 12t - 18$



A) $(-\infty, 13)$

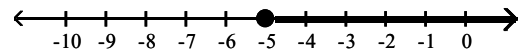


C) $(-\infty, -5]$

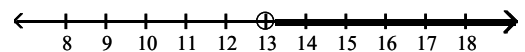


Answer: B

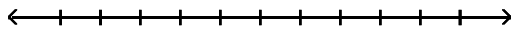
B) $[-5, \infty)$



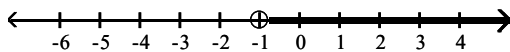
D) $(13, \infty)$



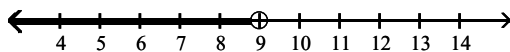
177) $9y - 6 > 3(2y - 3)$



A) $(-1, \infty)$

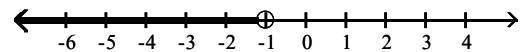


C) $(-\infty, 9)$

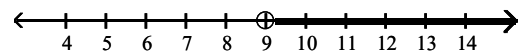


Answer: A

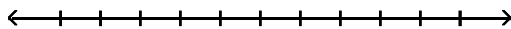
B) $(-\infty, -1)$



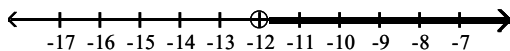
D) $(9, \infty)$



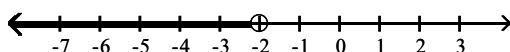
178) $-3(3z - 3) < -12z + 3$



A) $(-12, \infty)$

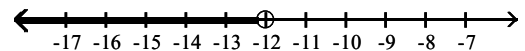


C) $(-\infty, -2)$

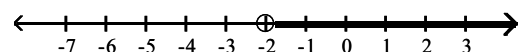


Answer: C

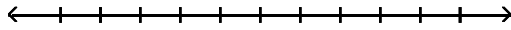
B) $(-\infty, -12)$



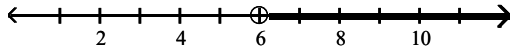
D) $(-2, \infty)$



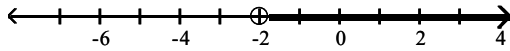
179) $m - 3(m - 8) < 2m$



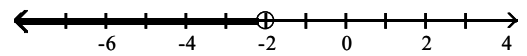
A) $(6, \infty)$



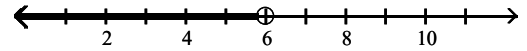
C) $(-2, \infty)$



B) $(-\infty, -2)$

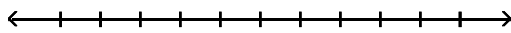


D) $(-\infty, 6)$

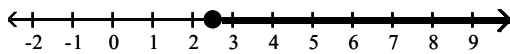


Answer: A

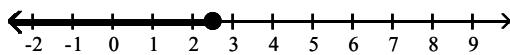
180) $21 - (3x + 5) \leq 3(x - 2) + 5x$



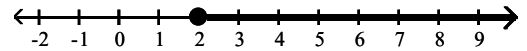
A) $\left[\frac{32}{11}, \infty\right)$



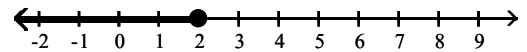
C) $\left(-\infty, \frac{32}{11}\right]$



B) $[2, \infty)$

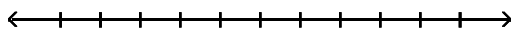


D) $(-\infty, 2]$

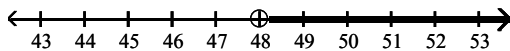


Answer: B

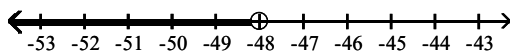
181) $-7(x - 6) + 11x < -3(-2x + 2) - 3x$



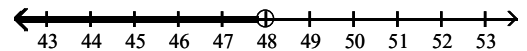
A) $(48, \infty)$



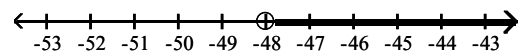
C) $(-\infty, -48)$



B) $(-\infty, 48)$

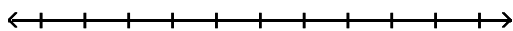


D) $(-48, \infty)$

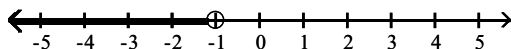


Answer: C

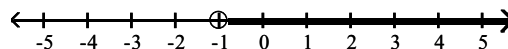
182) $\frac{1}{3}(x - 2) > \frac{1}{6}(5x + 1)$



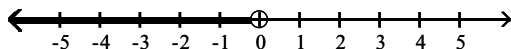
A) $(-\infty, -1)$



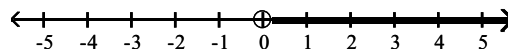
B) $(-1, \infty)$



C) $\left(-\infty, -\frac{5}{3}\right)$

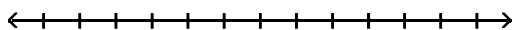


D) $\left[-\frac{5}{3}, \infty\right)$

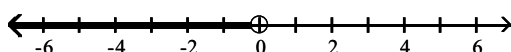


Answer: C

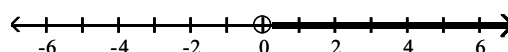
183) $\frac{4}{3}(3 + 4k) > \frac{3}{5}(5k - 1)$



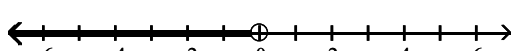
A) $\left(-\infty, -\frac{69}{35}\right)$



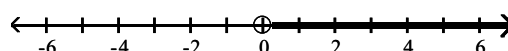
B) $\left(-\frac{69}{35}, \infty\right)$



C) $\left(-\infty, -\frac{4}{35}\right)$



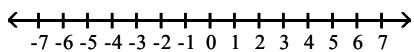
D) $\left[-\frac{4}{35}, \infty\right)$



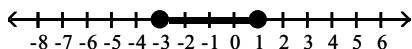
Answer: B

Solve the inequality, then graph the solution.

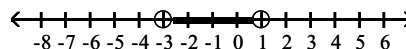
184) $-2 < -2x \leq 6$



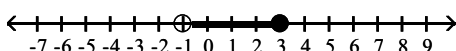
A) $[-3, 1]$



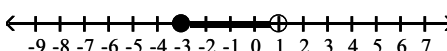
B) $(-3, 1)$



C) $(-1, 3]$

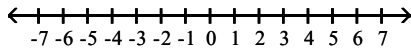


D) $[-3, 1)$

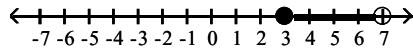


Answer: D

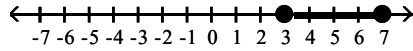
185) $13 < 3y + 4 \leq 25$



A) $[3, 7)$

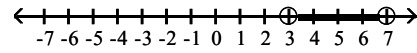


C) $[3, 7]$

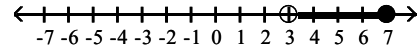


Answer: D

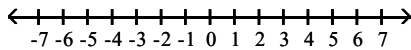
B) $(3, 7)$



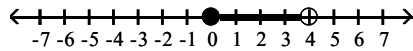
D) $(3, 7]$



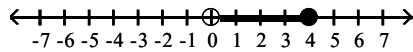
186) $2 < -5z + 2 \leq 22$



A) $[0, 4)$

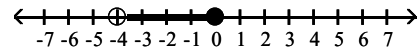


C) $(0, 4]$

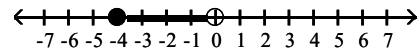


Answer: D

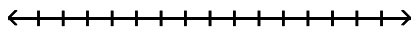
B) $(-4, 0]$



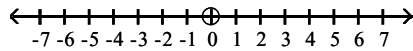
D) $[-4, 0)$



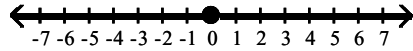
187) $3 < \frac{13x - 15}{6} < 12$



A) $\left(\frac{33}{13}, \frac{87}{13}\right)$

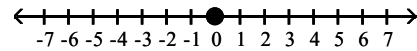


C) $\left(-\infty, \frac{33}{13}\right) \cup \left(\frac{87}{13}, \infty\right)$

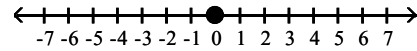


Answer: A

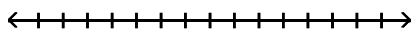
B) $\left[-\frac{33}{13}, \frac{87}{13}\right]$



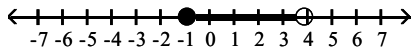
D) $\left[-\frac{87}{13}, \frac{33}{13}\right]$



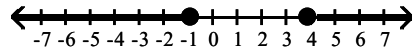
188) $-4 < \frac{7 - 10x}{8} \leq 2$



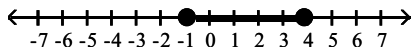
A) $\left[-\frac{9}{10}, \frac{39}{10}\right)$



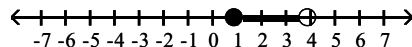
B) $\left(-\infty, -\frac{9}{10}\right] \cup \left[\frac{39}{10}, \infty\right)$



C) $\left[-\frac{9}{10}, \frac{39}{10}\right]$



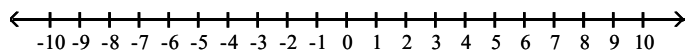
D) $\left[\frac{9}{10}, \frac{39}{10}\right)$



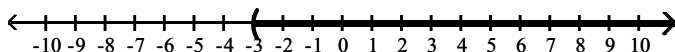
Answer: A

Solve the quadratic inequality. Graph the solution.

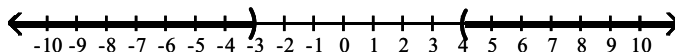
189) $(x - 4)(x + 3) > 0$



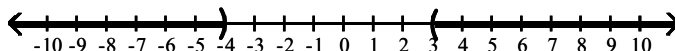
A) $(-3, \infty)$



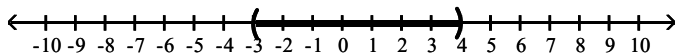
B) $(-\infty, -3) \cup (4, \infty)$



C) $(-\infty, -4) \cup (3, \infty)$



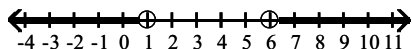
D) $(-3, 4)$



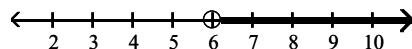
Answer: B

190) $p^2 - 7p + 6 > 0$

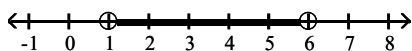
A) $(-\infty, 1) \cup (6, \infty)$



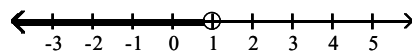
B) $(6, \infty)$



C) $(1, 6)$



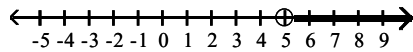
D) $(-\infty, 1)$



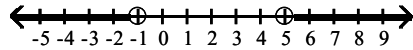
Answer: A

191) $s^2 - 4s - 5 < 0$

A) $(5, \infty)$

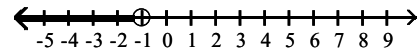


C) $(-\infty, -1) \cup (5, \infty)$

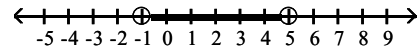


Answer: D

B) $(-\infty, -1)$

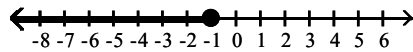


D) $(-1, 5)$

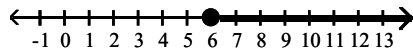


192) $t^2 - 5t - 6 \leq 0$

A) $(-\infty, -1]$

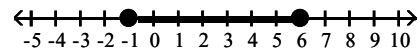


C) $[6, \infty)$

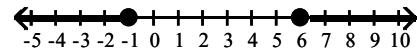


Answer: B

B) $[-1, 6]$

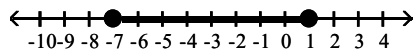


D) $(-\infty, -1] \cup [6, \infty)$

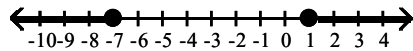


193) $v^2 + 6v - 7 \geq 0$

A) $[-7, 1]$

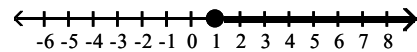


C) $(-\infty, -7] \cup [1, \infty)$

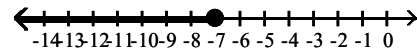


Answer: C

B) $[1, \infty)$

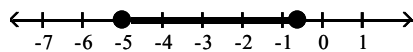


D) $(-\infty, -7]$

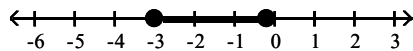


194) $5x^2 + 1x + 3 \geq 0$

A) $\left[-5, -\frac{3}{5}\right]$



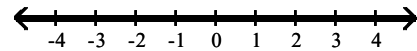
C) $\left[-3, -\frac{1}{5}\right]$



Answer: D

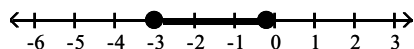
B) no solution

D) $(-\infty, \infty)$

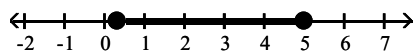


195) $-3x^2 + 7x - 5 \leq 0$

A) $\left[-3, -\frac{1}{5}\right]$



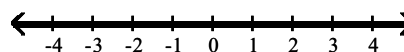
C) $\left[\frac{1}{3}, 5\right]$



Answer: D

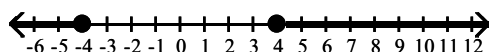
B) no solution

D) $(-\infty, \infty)$

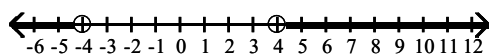


196) $x^2 \geq 16$

A) $(-\infty, -4] \cup [4, \infty)$

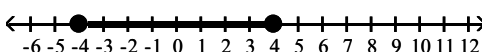


C) $(-\infty, -4) \cup (4, \infty)$

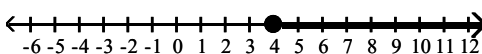


Answer: A

B) $[-4, 4]$

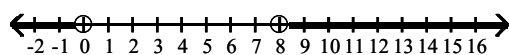


D) $[4, \infty)$

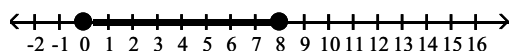


197) $y^2 - 8y < 0$

A) $(-\infty, 0) \cup (8, \infty)$

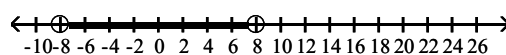


C) $[0, 8]$

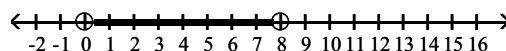


Answer: D

B) $(-8, 8)$



D) $(0, 8)$



Solve the inequality.

198) $\frac{-7}{-5x - 6} > 0$

A) $\left(-\infty, \frac{6}{5}\right)$

B) $\left(-\infty, -\frac{5}{6}\right)$

C) $\left(-\frac{6}{5}, \infty\right)$

D) $(0, \infty)$

Answer: C

199) $\frac{x + 13}{x + 2} < 5$

A) $(-\infty, -2) \cup \left(\frac{3}{4}, \infty\right)$

B) $\left(-\infty, \frac{3}{4}\right) \cup (2, \infty)$

C) $\left(-2, \frac{3}{4}\right)$

D) $\left(\frac{3}{4}, 2\right)$

Answer: A

200) $\frac{1}{x+7} > \frac{2}{9}$

A) no solution

B) $\left(-7, -\frac{5}{2}\right)$

C) $(-\infty, -7) \cup \left[-\frac{5}{2}, \infty\right)$

D) $\left(\frac{5}{2}, 7\right)$

Answer: B

201) $\frac{4}{(x+6)^2} < 0$

A) no solution

B) $(-4, \infty)$

C) $(-\infty, \infty)$

D) $(-2, \infty)$

Answer: A

202) $\frac{8}{x+9} > \frac{4}{x+9}$

A) $(-\infty, \infty)$

B) $(-9, \infty)$

C) no solution

D) $(-\infty, -9)$

Answer: B

203) $\frac{2x+5}{x-9} \geq 1$

A) $(-\infty, -14] \cup [9, \infty)$

B) $[-14, 9)$

C) $(-\infty, -14] \cup (9, \infty)$

D) $[-14, \infty)$

Answer: C

204) $\frac{x^2+x}{x^2-1} \leq 2$

A) $(1, 2]$

B) $(-\infty, -1) \cup [2, \infty)$

C) $(-\infty, -1) \cup (-1, 1) \cup [2, \infty)$

D) $(-\infty, 1) \cup [2, \infty)$

Answer: C

Evaluate the expression. Write your answer without exponents.

205) 4^{-3}

A) $\frac{1}{-64}$

B) 64

C) -64

D) $\frac{1}{64}$

Answer: D

206) $\frac{1}{7^{-3}}$

A) 49

B) 343

C) 21

D) 2,401

Answer: B

207) $\frac{2^{-4}}{3^{-2}}$

A) $\frac{27}{32}$

B) $\frac{32}{27}$

C) $\frac{16}{9}$

D) $\frac{9}{16}$

Answer: D

208) $\frac{1}{-5^{-3}}$

A) -25

B) 25

C) 125

D) -125

Answer: D

209) $(-3)^{-1}$

A) 3

B) $-\frac{1}{3}$

C) $\frac{1}{3}$

D) -3

Answer: B

210) $(-5)^{-2}$

A) -25

B) $\frac{1}{-25}$

C) 25

D) $\frac{1}{25}$

Answer: D

211) $-(-2^{-4})$

A) -16

B) $-\frac{1}{16}$

C) 16

D) $\frac{1}{16}$

Answer: D

212) 6^0

A) -1

B) 1

C) 0

D) 6

Answer: B

213) $(-13)^0$

A) -13

B) 1

C) 0

D) -1

Answer: B

214) $\left(\frac{7}{4}\right)^{-2}$

A) $\frac{49}{16}$

B) $\frac{1}{49}$

C) $\frac{4}{49}$

D) $\frac{16}{49}$

Answer: D

Simplify the expression. If the expression contains any variables, assume that they represent positive real numbers. Write your answer with only positive exponents.

215) $\frac{6^8 m \cdot 6^9 m}{6^{-6} m}$

A) $\frac{m}{6^{23}}$

B) $6^{11} m$

C) $6^{23} m$

D) $\frac{m}{6^{11}}$

Answer: C

$$216) \frac{7^{-6}p \cdot 7^{-8}p}{7^3p^3}$$

A) $7^{17}p$

B) $\frac{7^{11}}{p}$

C) $\frac{1}{7^{17}p}$

D) $\frac{1}{7^{11}p}$

Answer: C

$$217) \frac{32^5 \cdot 2^{-3}}{4^5}$$

A) 1

B) 8^{12}

C) 2^{12}

D) 2^5

Answer: C

$$218) \frac{(4x)^8}{x^8}$$

A) $\frac{1}{4}$

B) 4^8

C) $\frac{4}{x}$

D) 4

Answer: B

$$219) \frac{x^{-5}}{(4x)^{-5}}$$

A) $4x$

B) 4^5

C) $\frac{1}{4^5}$

D) 4

Answer: B

$$220) \frac{x^7(x^{-9})^{-9}}{(x^{-5})^{-4}}$$

A) x^{94}

B) $\frac{1}{x^{94}}$

C) x^{68}

D) x^{20}

Answer: C

$$221) \frac{x^{-6}(x^6)^{-8}}{(x^{-3})^{-9}}$$

A) x^{81}

B) $\frac{1}{x^{81}}$

C) $\frac{1}{x^{27}}$

D) x^4

Answer: B

$$222) \left(\frac{x^{-4}y^5}{y^{-5}} \right)^{-2}$$

A) $\frac{y^{20}}{x^8}$

B) $\frac{1}{x^8y^{20}}$

C) $\frac{x^8}{y^{20}}$

D) $\frac{x^8}{y^{15}}$

Answer: C

$$223) \left(\frac{x^{-4}y^{-2}}{x^8y^{-6}} \right)^{1/2}$$

$$A) \frac{1}{x^6y^2}$$

$$B) \frac{y^2}{x^6}$$

$$C) \frac{x^6}{y^4}$$

$$D) \frac{y^2}{x^{12}}$$

Answer: B

Simplify the expression, writing the answer as a single term without negative exponents.

$$224) \frac{m^{-1} + z^{-1}}{m^{-1} - z^{-1}}$$

$$A) \frac{z + m}{z - m}$$

$$B) \frac{z + m}{m}$$

$$C) \frac{z + m}{z}$$

$$D) \frac{z - m}{z}$$

Answer: A

$$225) a^{-2} - b^{-2}$$

$$A) \frac{b - a}{ab}$$

$$B) \frac{b^2 - a^2}{a^2b^2}$$

$$C) \frac{b^2 + a^2}{a^2b^2}$$

$$D) \frac{b^2 - a^2}{ab^2}$$

Answer: B

$$226) (4k)^{-1} + 4m^{-1}$$

$$A) \frac{m + 16k}{4m}$$

$$B) \frac{m + 16k}{4k}$$

$$C) \frac{m - 16k}{4km}$$

$$D) \frac{m + 16k}{4km}$$

Answer: D

$$227) (a^{-1} + b^{-1})^{-1}$$

$$A) \frac{a + b}{ab}$$

$$B) \frac{ab}{a - b}$$

$$C) \frac{ab}{a + b}$$

$$D) \frac{ab}{a}$$

Answer: C

$$228) \frac{x^{-2}}{x^{-2} - y^{-2}}$$

$$A) \frac{y^2 - x^2}{y^2}$$

$$B) \frac{y^2}{y^2 + x^2}$$

$$C) \frac{y^2}{y^2 - x^2}$$

$$D) \frac{y}{y^2 - x^2}$$

Answer: C

$$229) \frac{4a^{-1} - 6b^{-1}}{(-9ab)^{-1}}$$

$$A) 54b - 36a$$

$$B) \frac{2}{9}$$

$$C) \frac{4b - 6a}{-9}$$

$$D) -36b + 54a$$

Answer: D

$$230) \frac{3xy^{-1} - 8yx^{-1}}{3x^2 - 8y^2}$$

A) 1

B) $\frac{1}{-24xy}$

C) xy

D) $\frac{1}{xy}$

Answer: D

$$231) (-4a^{-1} + 8b^{-1})^{-1}$$

A) $\frac{-32ab}{8a - 4b}$

B) $\frac{ab}{8b - 4a}$

C) $\frac{8a - 4b}{ab}$

D) $\frac{ab}{-4b + 8a}$

Answer: D

$$232) \frac{(5m + 3n)^{-1}}{9m^{-2} - 25n^{-2}}$$

A) $\frac{225m^2n^2}{(3n + 5m)(3n - 5m)^2}$

B) $\frac{m^2n^2}{(3n + 5m)^2(3n - 5m)}$

C) $\frac{m^2n^2}{(3n + 5m)(3n - 5m)^2}$

D) $\frac{8}{9m^{-1} - 25n^{-1}}$

Answer: B

$$233) \left(\frac{x}{2}\right)^{-3} + \left(\frac{y}{6}\right)^{-1}$$

A) $\frac{8y + 6x^3}{x^3y}$

B) $\frac{8y + 6x^3}{48}$

C) $\frac{8y + 6x}{xy}$

D) $\frac{48 + x^3y}{8y}$

Answer: A

Evaluate the expression.

$$234) 324^{1/2}$$

A) 36

B) 18

C) 9

D) 72

Answer: B

$$235) 8^{1/3}$$

A) 16

B) 48

C) 6

D) 2

Answer: D

$$236) 16^{1/4}$$

A) 2

B) 32

C) 8

D) 16

Answer: A

$$237) -243^{1/5}$$

A) -27

B) 81

C) 243

D) -3

Answer: D

$$238) \left(\frac{49}{16}\right)^{1/2}$$

$$A) \frac{7}{4}$$

$$B) \frac{7}{5}$$

$$C) \frac{6}{5}$$

$$D) \frac{6}{4}$$

Answer: A

$$239) 216^{4/3}$$

$$A) 1,296$$

$$B) 279,936$$

$$C) 7,776$$

$$D) 46,656$$

Answer: A

$$240) 81^{5/4}$$

$$A) 2,187$$

$$B) 19,683$$

$$C) 243$$

$$D) 6,561$$

Answer: C

$$241) 3,125^{4/5}$$

$$A) 78,125$$

$$B) 625$$

$$C) 390,625$$

$$D) 1,953,125$$

Answer: B

$$242) 27^{-2/3}$$

$$A) \frac{1}{3}$$

$$B) \frac{1}{9}$$

$$C) -9$$

$$D) -\frac{1}{9}$$

Answer: B

$$243) \left(\frac{125}{8}\right)^{-2/3}$$

$$A) \frac{25}{4}$$

$$B) -\frac{25}{4}$$

$$C) \frac{4}{25}$$

$$D) \frac{4}{125}$$

Answer: C

Simplify the expression. Write the answer with only positive exponents. Assume that all variables represent positive real numbers.

$$244) 5a^{3/2} \cdot 5a^{-7/2}$$

$$A) 5a^{-4}$$

$$B) \frac{a^2}{25}$$

$$C) \frac{5}{a^3}$$

$$D) \frac{25}{a^2}$$

Answer: D

$$245) \frac{x^{7/5} \cdot y^{3/2}}{x^{4/5} \cdot y^{-11/2}}$$

$$A) \frac{x^{3/5}}{y^4}$$

$$B) x^3y^{14}$$

$$C) \frac{x^{7/4}}{y^{3/11}}$$

$$D) x^{3/5}y^7$$

Answer: D

$$246) \frac{2^{-2/3} 2^5 x^{-6}}{2^{1/3} x^{-2}}$$

A) $2 x^8$

B) $2^4 x^7$

C) $\frac{2^4}{x^4}$

D) $\frac{2^6}{x^8}$

Answer: C

$$247) \frac{3 k^{-5} (6 k^{-2})^{-1}}{6 k^{3/2}}$$

A) $-\frac{1}{12 k^{10}}$

B) $-6 k^{11}$

C) $\frac{1}{12 k^{9/2}}$

D) $\frac{3}{k^{13/2}}$

Answer: C

$$248) \frac{5^{1/5} m^{-4}}{5^{-3/5} m^{-9}}$$

A) $5^{4/5} m^5$

B) $-5^{2/5} m^5$

C) $10^{4/25} m^6$

D) $\frac{5^{4/5}}{m^5}$

Answer: A

$$249) \frac{-6 b^{-2} b^{1/4}}{b^{-3}}$$

A) $\frac{b^{5/4}}{6}$

B) $-6 b^{5/4}$

C) $\frac{-6}{b^{5/4}}$

D) $-6 b^{7/4}$

Answer: B

$$250) \frac{2^{1/5} x^{-11}}{2^{-6} x^{-12}}$$

A) $\frac{x}{2^6}$

B) $2^{31/5} x$

C) $\frac{2^{33/5}}{x}$

D) $2^{29/5} x$

Answer: B

$$251) \frac{x^{-4/5} y^{-1/3} z^{7/6}}{x^{-1/5} y^{7/3} z^{-5/6}}$$

A) $\frac{z^2}{x^{3/5} y^{8/3}}$

B) $\frac{z^2}{x^{3/5} y^4}$

C) $\frac{z}{xy^{1/3}}$

D) $xy^{1/3}$

Answer: A

$$252) \frac{m^{-2/3} n^{-2/5} p^{13/8}}{m^{4/3} n^{13/5} p^{-3/8}}$$

A) $\frac{p^2}{m^2 n^3}$

B) $\frac{p^3}{m^{8/3} n^3}$

C) $\frac{p^2}{m^{5/3} n^3}$

D) $\frac{m^2}{n^3 p^2}$

Answer: A

$$253) \frac{k^{-1/5} \cdot m^{-1/9} \cdot n^{8/7}}{k^{7/5} \cdot m^{-5/9} \cdot n^{-2/7}}$$

$$A) \frac{m^{4/9} \cdot n^{10/7}}{k^{8/5}}$$

$$B) \frac{n^{10/7}}{k^{6/5} \cdot m^{4/9}}$$

$$C) \frac{m^{4/9} \cdot n^{10/7}}{k^{6/5}}$$

$$D) \frac{m^{4/9} \cdot n^{6/7}}{k^{8/5}}$$

Answer: A

Factor the expression.

$$254) (p - 7)(a + 4) + (p - 7)(a + 3)$$

$$A) (p - 7)(a + 7)$$

$$B) (p - 7)(a^2 + 7)$$

$$C) (p - 7)(2a + 7)$$

$$D) (p - 7)(a - 7)$$

Answer: C

$$255) (8q + 3)(11q + 8) + (8q + 3)(q - 8)$$

$$A) (8q + 3)(12q)$$

$$B) (8q + 3)(12q + 16)$$

$$C) (8q + 3)(12q - 16)$$

$$D) (16q + 6)(12q)$$

Answer: A

$$256) 2(x + y)^5 - 4(x + y)^4 + 6(x + y)^6$$

$$A) 2(x + y)^4[x + y - 2 + 3(x + y)^2]$$

$$C) 2(x + y)^5(-2 + 3x + 3y)$$

$$B) (x + y)^4[2x + 2y - 4 + 6(x + y)^2]$$

$$D) 2(x + y)[(x + y)^4 - 2(x + y) + 3(x + y)^5]$$

Answer: A

$$257) 15(p + 2)^2 + 13(p + 2) + 2$$

$$A) (3p + 7)(5p + 12)$$

$$B) (3p + 4)(5p + 3)$$

$$C) (3p + 2)(5p + 1)$$

$$D) (3p + 8)(5p + 11)$$

Answer: D

$$258) 20(m - 2)^2 - 3(m - 2) - 2$$

$$A) (5m - 12)(4m - 7)$$

$$B) (5m + 2)(4m + 1)$$

$$C) (5m + 4)(4m + 3)$$

$$D) (5m + 11)(4m + 10)$$

Answer: A

$$259) a^2(a + b)^2 - ab(a + b)^2 - 20b^2(a + b)^2$$

$$A) (a - 5b)(a + 4b)(a + b)$$

$$C) (a + b)^2(a - 4b)(a + 5b)$$

$$B) (a + b)^2(a - 5)(a + 4)$$

$$D) (a + b)^2(a - 5b)(a + 4b)$$

Answer: D

$$260) 4x^2(x^2 + 4)^2 - 2x(4x^3 + 1)(x^2 + 4)$$

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

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

$$B) 2x(x^2 + 4)(-4x^3 + 2x^2 + 7)$$

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

Answer: A

$$261) 6m^{1/2} + 4m^{-1/2}$$

$$A) m^{-1/2}(6m^{1/2} + 4)$$

$$B) m^{-1/2}(6m - 4)$$

$$C) m^{-1/2}(6m + 4)$$

$$D) m^{1/2}(6m + 4)$$

Answer: C

$$262) x(5x + 3)^2(x^2 - 4)^{-1/2} + 5(x^2 - 4)^{1/2}(5x + 3)$$

$$A) (5x + 3)(x^2 - 4)^{1/2}(10x^2 + 3x - 20)$$

$$C) (5x + 3)(x^2 - 4)^{-1/2}(10x^2 + 3x - 20)$$

Answer: C

$$B) (5x + 3)^2(x^2 - 4)^{-1/2}(5x^2 + x - 20)$$

$$D) (5x + 3)(x^2 - 4)^{-1/2}(5x^2 + 5x - 17)$$

$$263) (x - 7)^{-3/2} - (x - 7)^{-1/2} + (x - 7)^{1/2}$$

$$A) (x - 7)^{-3/2}(x^2 - 15x + 57)$$

$$C) (x - 7)^{-3/2}(x^2 - 15x - 50)$$

Answer: A

$$B) (x - 7)^{3/2}(x^2 + 14x - 57)$$

$$D) (x - 7)^{-3/2}(x^2 + 15x - 57)$$

Simplify. Assume that all variables represent positive real numbers.

$$264) \sqrt{28}$$

$$A) 4\sqrt{7}$$

$$B) 2\sqrt{7}$$

$$C) 5$$

$$D) 2$$

Answer: B

$$265) -\sqrt{125}$$

$$A) 5$$

$$B) -25\sqrt{5}$$

$$C) -5\sqrt{5}$$

$$D) 11$$

Answer: C

$$266) \sqrt[3]{48}$$

$$A) 2\sqrt[3]{6}$$

$$B) 6$$

$$C) 3$$

$$D) 6\sqrt[3]{2}$$

Answer: A

$$267) \sqrt[4]{486}$$

$$A) 4$$

$$B) 6\sqrt[4]{3}$$

$$C) 22$$

$$D) 3\sqrt[4]{6}$$

Answer: D

$$268) -\sqrt[4]{2,500}$$

$$A) 7$$

$$B) -5\sqrt[4]{4}$$

$$C) -4\sqrt[4]{5}$$

$$D) -7$$

Answer: B

$$269) \sqrt[3]{-125}$$

$$A) 25$$

$$B) -25$$

$$C) 5$$

$$D) -5$$

Answer: D

$$270) \sqrt{343x^2}$$

$$A) 7\sqrt{7x}$$

$$B) 343x$$

$$C) 7x^2\sqrt{7}$$

$$D) 7x\sqrt{7}$$

Answer: D

271) $\sqrt{108k^7q^8}$

A) $(6k^3q^4)\sqrt{3}$

B) $(6k^7q^8)\sqrt{3k}$

C) $(6q^4)\sqrt{3k^7}$

D) $(6k^3q^4)\sqrt{3k}$

Answer: D

272) $\sqrt[3]{512x^4y^5}$

A) $3xy(\sqrt[3]{xy^2})$

B) $8xy(\sqrt[3]{xy})$

C) $8xy(\sqrt[2]{xy^2})$

D) $8xy(\sqrt[3]{xy^2})$

Answer: D

273) $\sqrt[3]{-64a^8b^5}$

A) $4ab(\sqrt[3]{a^2b^2})$

B) $4ab(\sqrt[3]{a^3b^3})$

C) $4(\sqrt[3]{a^2b^2})$

D) $-4a^2b(\sqrt[3]{a^2b^2})$

Answer: D

Simplify the expression by removing as many factors as possible from under the radical. Assume that all variables represent positive real numbers.

274) $\sqrt{5} \cdot \sqrt{5}$

A) 5

B) 10

C) $\sqrt{25}$

D) 25

Answer: A

275) $\sqrt{2} \cdot \sqrt{8}$

A) 32

B) 16

C) 4

D) 8

Answer: C

276) $\sqrt{147} \cdot \sqrt{3}$

A) $7\sqrt{3}$

B) $3\sqrt{7}$

C) 21

D) 441

Answer: C

277) $\sqrt{5} \cdot \sqrt{10}$

A) $5\sqrt{2}$

B) $2\sqrt{5}$

C) $25\sqrt{2}$

D) 10

Answer: A

278) $\sqrt{15} \cdot \sqrt{27}$

A) $9\sqrt{5}$

B) $-9\sqrt{5}$

C) $-15\sqrt{3}$

D) $15\sqrt{3}$

Answer: A

279) $\sqrt{13x^3} \cdot \sqrt{13x^5}$

A) $\sqrt{13x^4}$

B) $\sqrt{169x^8}$

C) $13x^4$

D) $x^4\sqrt{26}$

Answer: C

280) $\sqrt[5]{t} \cdot \sqrt{t}$

A) $\sqrt[7]{2t}$

B) $\sqrt[7]{t^2}$

C) $\sqrt[10]{t^7}$

D) $\sqrt[5]{t^2}$

Answer: C

$$281) \sqrt[5]{x} \cdot \sqrt[7]{x^3}$$

A) $\sqrt[12]{x^4}$

Answer: D

B) $\sqrt[35]{x^4}$

C) $\sqrt[12]{x^3}$

D) $\sqrt[35]{x^{22}}$

$$282) \sqrt{m} \cdot \sqrt[4]{m^{13}}$$

A) $m^6\sqrt{m}$

Answer: C

B) $\sqrt[4]{m}$

C) $m^3\sqrt[4]{m^3}$

D) $m^6\sqrt[4]{m}$

Perform the indicated operations and simplify. Assume all variables represent positive real numbers.

$$283) -9\sqrt{98} - 3\sqrt{18} + 6\sqrt{162}$$

A) $-9\sqrt{2}$

Answer: D

B) $-189\sqrt{2}$

C) $189\sqrt{2}$

D) $-18\sqrt{2}$

$$284) \sqrt{108} - 8\sqrt{75} - 9\sqrt{12}$$

A) $52\sqrt{3}$

Answer: C

B) $63\sqrt{3}$

C) $-52\sqrt{3}$

D) $-75\sqrt{3}$

$$285) \sqrt{2} - 2\sqrt{98} - 4\sqrt{128}$$

A) $-45\sqrt{228}$

Answer: D

B) $-6\sqrt{2}$

C) $-6\sqrt{228}$

D) $-45\sqrt{2}$

$$286) \sqrt{5a} - 7\sqrt{45a} + 4\sqrt{20a}$$

A) $-12\sqrt{70a}$

Answer: C

B) $-3\sqrt{5a}$

C) $-12\sqrt{5a}$

D) $-3\sqrt{70a}$

$$287) \sqrt{5x^2} + 6\sqrt{125x^2} + 2\sqrt{125x^2}$$

A) $8x\sqrt{5}$

Answer: C

B) $8x\sqrt{171}$

C) $41x\sqrt{5}$

D) $41x\sqrt{171}$

$$288) \sqrt{5} + 3\sqrt{45} + 6\sqrt{20}$$

A) $-22\sqrt{5}$

Answer: C

B) $-3\sqrt{5}$

C) $22\sqrt{5}$

D) $3\sqrt{5}$

$$289) 10\sqrt[3]{3} + 13\sqrt[3]{3}$$

A) $23\sqrt[3]{9}$

Answer: D

B) $3\sqrt[3]{3}$

C) $23\sqrt[3]{6}$

D) $23\sqrt[3]{3}$

$$290) 5\sqrt[3]{2} - 4\sqrt[3]{128}$$

A) $11\sqrt[3]{2}$

Answer: C

B) $5\sqrt[3]{2} - 4\sqrt[3]{128}$

C) $-11\sqrt[3]{2}$

D) $1\sqrt[3]{2}$

291) $10 \sqrt[4]{x^7} - 3x \sqrt[4]{x^3}$

A) $7x \sqrt[4]{x^3}$

B) $7x \sqrt[4]{x^7}$

C) $10 \sqrt[4]{x^7} - 3x \sqrt[4]{x^3}$

D) $13 \sqrt[4]{x^3}$

Answer: A

292) $4 \sqrt[3]{a} + \sqrt[3]{8a}$

A) $8 \sqrt[3]{a}$

B) $4 \sqrt[3]{a} + \sqrt[3]{8a}$

C) $5 \sqrt[3]{8a}$

D) $6 \sqrt[3]{a}$

Answer: D

Simplify the root, if possible.

293) $\sqrt{16x^2 + 16x + 4}$

A) $4x + 2$

C) cannot be simplified

B) $(4x + 2)^2$

D) $|4x + 2|$

Answer: D

294) $\sqrt{36m^2 + 49n^2}$

A) cannot be simplified

C) $6m + 7n$

B) $|6m + 7n|$

D) $(6m + 7n)^2$

Answer: A

295) $\sqrt{z^2 - 10z + 25}$

A) $-z + 5$

B) $|z| - 5$

C) $|z - 5|$

D) $z - 5$

Answer: C

Rationalize the denominator. Assume that all radicands represent positive real numbers.

296) $-\sqrt{\frac{81}{28}}$

A) -28

B) $-\frac{9\sqrt{7}}{7}$

C) $-\frac{9\sqrt{7}}{14}$

D) $-9\sqrt{7}$

Answer: C

297) $\frac{7}{8 - \sqrt{10}}$

A) $\frac{7}{8} - \frac{7}{\sqrt{10}}$

B) $\frac{56 + 7\sqrt{10}}{2}$

C) $\frac{56 + 7\sqrt{10}}{54}$

D) $\frac{56 - 7\sqrt{10}}{54}$

Answer: C

298) $\frac{\sqrt{7}}{\sqrt{3} + 8}$

A) $\frac{\sqrt{21} - 8\sqrt{7}}{11}$

B) $\frac{\sqrt{21} - 8\sqrt{7}}{-61}$

C) $\frac{3\sqrt{21} + 37}{24}$

D) $\frac{\sqrt{21} + 8\sqrt{7}}{-61}$

Answer: B

$$299) \frac{2 - \sqrt{7}}{2 + \sqrt{7}}$$

$$A) \frac{11 + 4\sqrt{7}}{-3}$$

$$B) 1$$

$$C) \frac{11 - 4\sqrt{7}}{-3}$$

$$D) \frac{-3 - 4\sqrt{7}}{11}$$

Answer: C

$$300) \frac{\sqrt{7}}{7\sqrt{2} - \sqrt{7}}$$

$$A) \frac{1}{13} (\sqrt{2} + 1)$$

$$B) \frac{1}{13} (\sqrt{14} - 1)$$

$$C) \frac{1}{15} (\sqrt{14} + 1)$$

$$D) \frac{1}{13} (\sqrt{14} + 1)$$

Answer: D

$$301) \frac{4}{\sqrt{x} + 3}$$

$$A) \frac{4\sqrt{x} - 12}{x - 9}$$

$$B) \frac{16}{x + 9}$$

$$C) \frac{4\sqrt{x} + 12}{x + 9}$$

$$D) \frac{16}{x - 9}$$

Answer: A

$$302) \frac{5\sqrt{x} + 2}{3\sqrt{x} - 3}$$

$$A) \frac{15x - 6}{9x - 9}$$

$$B) \frac{5x + 21\sqrt{x} + 6}{9x - 9}$$

$$C) \frac{25x + 4}{9x - 9}$$

$$D) \frac{15x + 21\sqrt{x} + 6}{9x - 9}$$

Answer: D

$$303) \frac{3x}{\sqrt{4x + 7}}$$

$$A) \frac{9x^2}{4x + 7}$$

$$B) \frac{3x\sqrt{4x + 7}}{4x - 7}$$

$$C) \frac{3x\sqrt{4x + 7}}{4x + 7}$$

$$D) \frac{9x^2\sqrt{4x - 7}}{4x - 7}$$

Answer: C

$$304) \frac{2}{\sqrt{11}}$$

$$A) 2\sqrt{11}$$

$$B) \frac{2\sqrt{2}}{11}$$

$$C) \frac{2\sqrt{11}}{11}$$

$$D) \frac{2}{11}$$

Answer: C

$$305) \frac{\sqrt{y} - \sqrt{y + 3}}{\sqrt{y} + \sqrt{y + 3}}$$

$$A) \frac{2y + 3 - 2\sqrt{y(y + 3)}}{3}$$

$$B) \frac{-2y - 3}{3}$$

$$C) \frac{-3}{2y + 3}$$

$$D) \frac{-2y - 3 + 2\sqrt{y(y + 3)}}{3}$$

Answer: D

Rationalize the numerator. Assume that all radicands represent positive real numbers.

$$306) \frac{\sqrt{17} + 2}{2}$$

$$A) \frac{17}{\sqrt{17} - 1}$$

$$B) \frac{13}{2\sqrt{17} - 4}$$

$$C) \frac{14}{2\sqrt{17} - 1}$$

$$D) \frac{-17}{\sqrt{17}}$$

Answer: B

$$307) \frac{5 - \sqrt{7}}{2 - \sqrt{3}}$$

$$A) \frac{18}{10 + 2\sqrt{7} - 5\sqrt{3} - \sqrt{21}}$$

$$B) \frac{18}{10 - 2\sqrt{7} - 5\sqrt{3} - \sqrt{21}}$$

$$C) \frac{18}{10 - 3\sqrt{4} - 21}$$

$$D) \frac{18}{10 + 2\sqrt{7} - 5\sqrt{3} - 21}$$

Answer: A

$$308) \frac{3 + \sqrt{2}}{7 + \sqrt{5}}$$

$$A) \frac{7}{21 - 10\sqrt{7} - 10}$$

$$B) \frac{7}{21 - 7\sqrt{2} - 3\sqrt{5} - 10}$$

$$C) \frac{7}{21 + 7\sqrt{2} - 3\sqrt{5} - \sqrt{10}}$$

$$D) \frac{7}{21 - 7\sqrt{2} + 3\sqrt{5} - \sqrt{10}}$$

Answer: D

$$309) \frac{\sqrt{x} + \sqrt{y}}{8x}$$

$$A) \frac{8x - 8y}{x\sqrt{x} - x\sqrt{y}}$$

$$B) -\frac{y}{8\sqrt{x} - 8\sqrt{y}}$$

$$C) \frac{x + y}{-8x\sqrt{x} + 8x\sqrt{y}}$$

$$D) \frac{x - y}{8x\sqrt{x} - 8x\sqrt{y}}$$

Answer: D

$$310) \frac{\sqrt{m} - \sqrt{n}}{6 + \sqrt{n}}$$

$$A) \frac{m - 1}{6\sqrt{m} + 6\sqrt{n} + \sqrt{mn}}$$

$$B) \frac{m - n}{6\sqrt{m} + 6\sqrt{n} + \sqrt{mn} + n}$$

$$C) \frac{m + n}{6\sqrt{m} - 6\sqrt{n} - \sqrt{mn} - n}$$

$$D) \frac{m - n}{6\sqrt{m} + n}$$

Answer: B

Answer Key

Testname: UNTITLED1

- 1) B
- 2) D
- 3) D
- 4) D
- 5) B
- 6) C
- 7) C
- 8) B
- 9) B
- 10) B
- 11) B
- 12) D
- 13) B
- 14) C
- 15) B
- 16) A
- 17) D
- 18) C
- 19) B
- 20) A
- 21) A
- 22) B
- 23) A
- 24) D
- 25) C
- 26) A
- 27) C
- 28) D
- 29) A
- 30) D
- 31) A
- 32) D
- 33) B
- 34) D
- 35) C
- 36) D
- 37) C
- 38) B
- 39) D
- 40) C
- 41) C
- 42) A
- 43) C
- 44) C
- 45) D
- 46) D
- 47) B
- 48) B
- 49) A
- 50) B

Answer Key

Testname: UNTITLED1

- 51) C
- 52) B
- 53) D
- 54) A
- 55) C
- 56) C
- 57) D
- 58) C
- 59) B
- 60) D
- 61) B
- 62) C
- 63) D
- 64) C
- 65) D
- 66) D
- 67) D
- 68) D
- 69) A
- 70) A
- 71) C
- 72) B
- 73) A
- 74) D
- 75) B
- 76) A
- 77) B
- 78) B
- 79) A
- 80) B
- 81) A
- 82) C
- 83) B
- 84) C
- 85) A
- 86) A
- 87) B
- 88) D
- 89) D
- 90) A
- 91) B
- 92) D
- 93) B
- 94) D
- 95) D
- 96) D
- 97) C
- 98) D
- 99) D
- 100) C

Answer Key

Testname: UNTITLED1

- 101) D
- 102) D
- 103) C
- 104) A
- 105) A
- 106) B
- 107) D
- 108) B
- 109) B
- 110) B
- 111) C
- 112) B
- 113) C
- 114) A
- 115) B
- 116) B
- 117) B
- 118) D
- 119) C
- 120) C
- 121) D
- 122) B
- 123) A
- 124) C
- 125) D
- 126) C
- 127) D
- 128) D
- 129) A
- 130) B
- 131) A
- 132) C
- 133) A
- 134) B
- 135) A
- 136) C
- 137) B
- 138) D
- 139) B
- 140) C
- 141) C
- 142) B
- 143) D
- 144) A
- 145) D
- 146) C
- 147) A
- 148) D
- 149) D
- 150) D

Answer Key

Testname: UNTITLED1

- 151) D
- 152) A
- 153) D
- 154) C
- 155) A
- 156) B
- 157) A
- 158) C
- 159) A
- 160) C
- 161) A
- 162) B
- 163) A
- 164) A
- 165) D
- 166) D
- 167) D
- 168) B
- 169) A
- 170) D
- 171) C
- 172) A
- 173) B
- 174) A
- 175) C
- 176) B
- 177) A
- 178) C
- 179) A
- 180) B
- 181) C
- 182) C
- 183) B
- 184) D
- 185) D
- 186) D
- 187) A
- 188) A
- 189) B
- 190) A
- 191) D
- 192) B
- 193) C
- 194) D
- 195) D
- 196) A
- 197) D
- 198) C
- 199) A
- 200) B

Answer Key

Testname: UNTITLED1

- 201) A
- 202) B
- 203) C
- 204) C
- 205) D
- 206) B
- 207) D
- 208) D
- 209) B
- 210) D
- 211) D
- 212) B
- 213) B
- 214) D
- 215) C
- 216) C
- 217) C
- 218) B
- 219) B
- 220) C
- 221) B
- 222) C
- 223) B
- 224) A
- 225) B
- 226) D
- 227) C
- 228) C
- 229) D
- 230) D
- 231) D
- 232) B
- 233) A
- 234) B
- 235) D
- 236) A
- 237) D
- 238) A
- 239) A
- 240) C
- 241) B
- 242) B
- 243) C
- 244) D
- 245) D
- 246) C
- 247) C
- 248) A
- 249) B
- 250) B

Answer Key

Testname: UNTITLED1

- 251) A
- 252) A
- 253) A
- 254) C
- 255) A
- 256) A
- 257) D
- 258) A
- 259) D
- 260) A
- 261) C
- 262) C
- 263) A
- 264) B
- 265) C
- 266) A
- 267) D
- 268) B
- 269) D
- 270) D
- 271) D
- 272) D
- 273) D
- 274) A
- 275) C
- 276) C
- 277) A
- 278) A
- 279) C
- 280) C
- 281) D
- 282) C
- 283) D
- 284) C
- 285) D
- 286) C
- 287) C
- 288) C
- 289) D
- 290) C
- 291) A
- 292) D
- 293) D
- 294) A
- 295) C
- 296) C
- 297) C
- 298) B
- 299) C
- 300) D

Answer Key

Testname: UNTITLED1

- 301) A
- 302) D
- 303) C
- 304) C
- 305) D
- 306) B
- 307) A
- 308) D
- 309) D
- 310) B