

Finite Mathematics and Calculus with Applications
11th edition Lial Test Bank

SKU: 9780135904602-TEST-BANK

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

Perform the indicated operation.

1) $(3x^2 - 4x - 6) + (-9x^2 - 6x + 12)$

A) $-6x^2 - 10x + 6$

B) $12x^2 - 10x - 18$

C) $12x^2 - 10x + 18$

D) $6x^2 + 10x + 6$

Answer: A

2) $(9n^5 + 18n^4 + 10) - (6n^5 + 2n^4 - 3)$

A) $3n^5 + 16n^4 + 7$

B) $3n^5 + 24n^4 + 7$

C) $32n^9$

D) $3n^5 + 16n^4 + 13$

Answer: D

3) $(6m^5 - 2m^2 + 8m) + (4m^5 + 9m^2 + 7m)$

A) $10m^5 + 7m^2 + 15m$

B) $10m + 7m^5 + 15m^2$

C) $32m^8$

D) $12m^5 + 15m^2 + 5m$

Answer: A

4) $(8q^2 - 7q - q^3 + 9) - (5q^2 - 7q - q^3 + 8)$

A) $2q^2 - 17$

B) $2q^2 - 2q^3 - 1$

C) $3q^2 + 1$

D) $3q^2 - 14q - 17$

Answer: C

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

A) $5p^2 - 12p - 11$

B) $5p^2 + 12p + 3$

C) $4p^2 - 2p^3 + 4p + 3$

D) $4p^2 + 4p - 11$

Answer: B

6) $(2r^4 + 4r^2 - 9r) - (-6r^3 + 7r^2 - 9r - 4)$

A) $3r^4 + 7r^3 + 11r^2 + 4$

B) $2r^4 + 6r^3 - 3r^2 + 4$

C) $13r^7 + 11r^3$

D) $2r^4 - 6r^3 + 11r^2 - 4$

Answer: B

7) $(3k^4 + 6k^3 - 4k^2 + 6) + (4k^4 - 9k^3 - 3k^2 + 1)$

A) $7k^8 - 3k^6 - 7k^4 + 7$

C) $-3k^{18} + 7$

B) $7k^4 - 3k^3 - 7k^2 + 7$

D) $-3k^4 - 3k^3 + 4k^2 + 10$

Answer: B

8) $(8y^8 + 7y^7 - 8y^6 + 3) - (4y^8 + 9y^7 + 2y^6 - 8)$

A) $4y^8 - 2y^7 - 10y^6 + 11$

C) $12y^8 + 16y^7 - 6y^6 - 5$

B) $4y^8 + 16y^7 - 6y^6 - 5$

D) $12y^8 + 16y^7 - 6y^6 + 11$

Answer: A

9) $2(q^2 - 4q + 5) + 2(3q^2 + q - 1)$

A) $5q^2 + 10q - 8$

B) $8q^2 + 10q - 8$

C) $8q^2 + 6q + 8$

D) $8q^2 - 6q + 8$

Answer: D

10) $0.13(2x^2 + 4x - 1) - (5.92x^2 - 8x + 6.796)$

A) $-5.66x^2 - 4x - 6.926$

C) $-3.92x^2 + 8.52x - 6.926$

B) $-3.92x^2 + 12x - 7.796$

D) $-5.66x^2 + 8.52x - 6.926$

Answer: D

11) $-9p(-12p^2 - 11p + 3)$

A) $108p^3 - 11p^2 - 27p$

B) $108p^3 + 99p^2 - 27p$

C) $108p^3 + 99p^2 + 3p$

D) $108p^3 + 72p^2$

Answer: B

12) $11m(10m^2 + 6m - 10)$

A) $110m^3 + 66m^2 - 110m$

C) $110m^2 + 66m - 110$

B) $110m^3 + 66m - 110$

D) $-110m^3 - 66m^2 + 110m$

Answer: A

13) $-11y^2(2y^2 - 7y - 12)$

A) $-22y^4 + 77y^2 + 132y$

C) $-22y^4 + 77y^3 + 132y^2$

B) $22y^4 - 77y^3 - 132y^2$

D) $-22y^3 + 77y^2 + 132y$

Answer: C

14) $(4x - 9)(x + 7)$

A) $x^2 - 63x + 19$

B) $4x^2 + 19x - 63$

C) $x^2 + 19x + 18$

D) $4x^2 + 18x - 63$

Answer: B

15) $(4k - 11)(k + 12)$

A) $4k^2 + 37k + 37$

B) $4k^2 + 35k - 132$

C) $4k^2 - 132k + 37$

D) $4k^2 + 37k - 132$

Answer: D

16) $(m - 5)(5m - 4)$

A) $5m^2 + 20m - 29$

B) $5m^2 - 29m - 29$

C) $5m^2 - 31m + 20$

D) $5m^2 - 29m + 20$

Answer: D

17) $(2p + 2)(5p + 5)$

A) $10p^2 + 20p + 20$

B) $10p^2 + 20p + 10$

C) $7p^2 + 20p + 20$

D) $7p^2 + 20p + 10$

Answer: B

18) $(x + 10y)(x + 6y)$

A) $x + 16xy + 60y$

B) $x^2 + 13xy + 60y^2$

C) $x^2 + 16xy + 16y^2$

D) $x^2 + 16xy + 60y^2$

Answer: D

19) $(a + 10b)(4a + 4b)$

A) $a^2 + 44ab + 40b^2$

B) $a^2 + 44ab + 44b^2$

C) $4a^2 + 44ab + 40b^2$

D) $4a^2 + 44ab + 44b^2$

Answer: C

20) $(2x + 4)(2x - 4)$

A) $2x^2 - 16x - 16$

B) $4x^2 + 16x - 16$

C) $4x^2 - 16x - 16$

D) $4x^2 - 16$

Answer: D

21) $(4r + 9)(4r + 9)$

A) $4r^2 + 72r + 71$

B) $16r^2 + 81r + 72$

C) $16r^2 + 72r + 81$

D) $4r^2 + 71r + 81$

Answer: C

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

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

$$B) q^2 + 1$$

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

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

Answer: D

$$23) \left(\frac{2}{3}m - 2 \right) \left(\frac{5}{3}m + 2 \right)$$

$$A) \frac{5}{3}m^2 - 2m - 4$$

$$B) \frac{10}{9}m^2 - 2m - 4$$

$$C) \frac{10}{3}m^2 - 2m - 4$$

$$D) \frac{10}{3}m^2 - 2m - 8$$

Answer: B

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

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

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

$$C) x^3 + 28$$

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

Answer: B

$$25) (m - 3)(7m^2 + m + 8)$$

$$A) 7m^3 - 20m^2 + 11m - 24$$

$$B) 7m^3 + 20m^2 + 5m - 24$$

$$C) 7m^3 - 20m^2 + 5m - 24$$

$$D) 7m^3 - 22m^2 + 5m - 24$$

Answer: C

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

$$A) 8r^4 + 10r^3 - 37r^2 - 5r + 25$$

$$B) 8r^4 + 10r^3 + 3r^2 - 5r + 25$$

$$C) 8r^4 + 10r^3 - 37r^2 - 20r + 25$$

$$D) 8r^4 - 5r^3 - 37r^2 - 5r + 25$$

Answer: A

$$27) (2x + 9y)(5x - 11y + 1)$$

$$A) 10x^2 + 23xy + 2x - 99y^2 + 9y$$

$$B) 10x^2 - 22xy + 2x - 99y^2$$

$$C) 10x^2 + 23xy + 23y^2$$

$$D) 10x^2 + 45xy + 2x - 99y^2 + 9y$$

Answer: A

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

$$A) -12a^4 - 2a^2b - 3a^2c + 4b^2 - 2bc$$

$$B) -12a^4 - 2a^2b + 4b^4 - 3a^2bc$$

$$C) -12a^2 - 2ab - 3a^2c + 4b^2 - 2c$$

$$D) -12a^4 - 2a^2b^2 + 4b^2$$

Answer: A

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

$$A) 4x^4 - 16x^3 - 17x^2 - 18x - 9$$

$$B) 4x^4 - 14x^3 - 17x^2 - 18x - 9$$

$$C) 4x^4 - 16x^3 - 20x^2 - 18x - 9$$

$$D) 4x^4 - 14x^3 - 20x^2 - 18x - 9$$

Answer: B

$$30) (x + 5)(x - 4)(x - 3)$$

$$A) x^3 + 4x^2 - 17x - 60$$

$$B) x^3 + 60$$

$$C) x^3 - 2x^2 - 23x + 60$$

$$D) x^3 + 23x^2 - 2x - 60$$

Answer: C

- 31) $(n + 15)^2$
 A) $n^2 + 225$ B) $n + 225$ C) $225n^2 + 30n + 225$ D) $n^2 + 30n + 225$
 Answer: D

- 32) $(4x - 7y)^2$
 A) $4x^2 - 56xy + 49y^2$ B) $16x^2 - 56xy + 49y^2$ C) $16x^2 + 49y^2$ D) $4x^2 + 49y^2$
 Answer: B

- 33) $(2a - b)^3$
 A) $8a^3 - 12a^2b + 6ab^2 - b^3$ B) $8a^3 - b^3$
 C) $8a^3 - 4a^2b + 2ab^2 - b^3$ D) $8a^3 - 12a^2b - 6ab^2 - b^3$
 Answer: A

Factor out the greatest common factor.

- 34) $3a^6 + 12a^3$
 A) $9(a^3 + 4a)$ B) $3a^3(a^3 + 4)$ C) $a^3(3a^3 + 12)$ D) $3(a^6 + 4a^3)$
 Answer: B

- 35) $20x^3 - 40x^2 + 30x$
 A) $10(2x^3 - 4x^2 + 3x)$ B) $20x(x^2 - 2x + 3)$
 C) $10x(2x^2 - 4x + 3)$ D) $10x(2x^2 - 40x^2 + 30x)$
 Answer: C

- 36) $16m^9 - 12m^5 + 28m^2$
 A) no common factor B) $4m^2(4m^7 - 3m^3 + 7)$
 C) $m^2(16m^7 - 12m^3 + 28)$ D) $4(4m^9 - 3m^5 + 7m^2)$
 Answer: B

- 37) $32m^8 - 80m^4 - 128m^2$
 A) $16m^2(2m^6 - 5m^2 - 8)$ B) $m^2(32m^6 - 80m^2 - 128)$
 C) $16(2m^8 - 5m^4 - 8m^2)$ D) no common factor
 Answer: A

- 38) $21x^4y^3 - 6x^3y^2 + 15x^2y$
 A) $3x^2y^2(7x^2y - 2x + 5)$ B) $3x^2y(7x^2y^2 - 2xy + 5)$
 C) $3xy(7x^3y^2 - 2x^2y + 5x)$ D) $3(7x^4y^3 - 2x^3y^2 + 5x^2y)$
 Answer: B

- 39) $40x^7y^9 - 24x^5y^7 + 48x^2y^5$
 A) no common factor B) $8(5x^7y^9 - 3x^5y^7 + 6x^2y^5)$
 C) $8x^2y^5(5x^5y^4 - 3x^3y^2 + 6)$ D) $8x^2(5x^5y^9 - 3x^3y^7 + 6y^5)$
 Answer: C

40) $48x^9y^8 - 112x^2y^6 - 80x^6y^4$

A) $16x^2y^4(3x^7y^4 - 7y^2 - 5x^4)$

C) $16x^2(3x^7y^8 - 7y^6 - 5x^4y^4)$

B) no common factor

D) $16(3x^9y^8 - 7x^2y^6 - 5x^6y^4)$

Answer: A

41) $15m^2 - 14r^3$

A) $m^2(15 - 14m)$

B) $2(7m^2 + 7r^3)$

C) no common factor

D) $3(5m^2 - 4r^3)$

Answer: C

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

42) $x^2 + 3x - 28$

A) $(x - 7)(x + 4)$

B) prime

C) $(x - 7)(x + 1)$

D) $(x + 7)(x - 4)$

Answer: D

43) $x^2 - 2x - 8$

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

B) prime

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

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

Answer: C

44) $x^2 + 3x + 2$

A) $(x + 1)(x + 2)$

B) $(x + 2)(x + 3)$

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

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

Answer: A

45) $x^2 - 12x + 27$

A) $(x + 3)(x - 9)$

B) $(x - 3)(x + 9)$

C) $(x - 3)(x - 9)$

D) $(x + 3)(x + 9)$

Answer: C

46) $x^2 - x - 35$

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

B) $(x - 35)(x + 1)$

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

D) prime

Answer: D

47) $7x^2 - 22x - 24$

A) $(6x + 7)(x - 4)$

B) $(x + 7)(x - 4)$

C) $(x - 6)(x - 4)$

D) $(7x + 6)(x - 4)$

Answer: D

48) $3x^2 + 10x - 8$

A) $(3x - 10)(3x - 2)$

B) $(2 - 3x)(3x - 2)$

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

D) $(3x - 2)(x + 4)$

Answer: D

49) $10z^2 + 9z - 9$

A) $(2z - 3)(5z + 3)$

B) $(2z + 3)(5z - 3)$

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

D) prime

Answer: B

50) $u^2 - 4uv - 12v^2$

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

B) prime

C) $(u + 2v)(u - 6v)$

D) $(u - 2v)(u + 6v)$

Answer: C

51) $x^2 - 11xy + 30y^2$

A) prime

B) $(x - 30y)(x - y)$

C) $(x - 6y)(x - 5y)$

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

Answer: C

52) $12x^2 - 5xt - 3t^2$

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

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

C) $(12x + t)(x - 3t)$

D) prime

Answer: B

53) $10m^2 - 29mn + 10n^2$

A) $(2m - 5n)(5m + 2n)$

B) $(2m - 5n)(5m - 2n)$

C) $(2mn + 5)(5mn + 2)$

D) $(2mn - 5)(5mn - 2)$

Answer: B

54) $9x^2 - 9x - 54$

A) $(9x + 18)(x - 3)$

B) $9(x + 2)(x - 3)$

C) prime

D) $9(x - 2)(x + 3)$

Answer: B

55) $18x^2 - 78x - 60$

A) prime

B) $6(3x + 2)(x - 5)$

C) $6(3x - 2)(x + 5)$

D) $(18x + 12)(x - 5)$

Answer: B

56) $12y^2 + 54y - 30$

A) $6(2y + 1)(y - 5)$

B) $(12y - 6)(y + 5)$

C) prime

D) $6(2y - 1)(y + 5)$

Answer: D

57) $4x^2 - 12xy - 16y^2$

A) prime

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

C) $(4x - 4y)(x + 4y)$

D) $4(x - y)(x + 4y)$

Answer: B

58) $5y^3 - 15y^2 - 50y$

A) $5y(y - 2)(y + 5)$

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

C) $5y(y + 2)(y - 5)$

D) $(5y^2 + 10y)(y - 5)$

Answer: C

59) $21x^3 - 91x^2 - 70x$

A) $(x^2 - 5)(21x + 14)$

B) $7x(3x + 2)(x - 5)$

C) $7(3x - 2)(x + 5)$

D) $x(3x + 2)(7x - 35)$

Answer: B

60) $72x^2 + 42xy + 6y^2$

A) $6(3x + y)(4x + y)$

B) $6(3x - y)(4x - y)$

C) prime

D) $(18x + 6y)(4x + y)$

Answer: A

61) $x^3 + 3x^2 - 28x$

A) $x(x + 7)(x + 4)$

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

C) $x(x - 7)(x - 4)$

D) $x(x + 7)(x - 4)$

Answer: D

62) $a^3b - 10a^2b^2 + 21ab^3$

A) $a(ab - 3)(ab - 7)$

B) $ab(a - 3b)(a + 7b)$

C) $ab(a - 3b)(a - 7b)$

D) $ab(a - 21b)(a - b)$

Answer: C

63) $2x^3 + 12x^2y - 32xy^2$
 A) $2(x - 2y)(x + 8y)$ B) $2x(x - 2y)(x + 8y)$ C) $2x(x + 2y)(x - 8y)$ D) $2xy(x - 2y)(x + 8y)$
 Answer: B

64) $16x^4 + 36x^3y + 18x^2y^2$
 A) $2x^2(4x + 3y)(2x + 3y)$ B) $2x^2y^2(4x + 3)(2x + 3)$
 C) $2x^2(4x + 1)(2x + 9)$ D) $2xy(4x + 1)(2x + 9)$
 Answer: A

65) $81x^2 - 4$
 A) $(9x + 2)(9x - 2)$ B) $(9x + 2)^2$ C) prime D) $(9x - 2)^2$
 Answer: A

66) $49k^2 - 169m^2$
 A) $(7k + 13m)^2$ B) $(7k + 13m)(7k - 13m)$
 C) prime D) $(7k - 13m)^2$
 Answer: B

67) $64y^4 - 49$
 A) $(8y^2 + 7)(8y^2 - 7)$ B) prime C) $(8y^2 - 7)^2$ D) $(8y^2 + 7)^2$
 Answer: A

68) $25s^2 - 121t^4$
 A) prime B) $(5s + 11t^2)^2$
 C) $(5s - 11t^2)^2$ D) $(5s + 11t^2)(5s - 11t^2)$
 Answer: D

69) $18a^4 - 8b^2$
 A) $2(3a^2 + 2b)^2$ B) prime
 C) $2(3a^2 + 2b)(3a^2 - 2b)$ D) $2(3a^2 - 2b)^2$
 Answer: C

70) $32a^4b - 98b^3$
 A) $2b(4a^2 + 7b)(4a^2 - 7b)$ B) $2b(4a + 7b)^2$
 C) $2b(4a - 7b)^2$ D) prime
 Answer: A

71) $9x^2 + 4$
 A) $(3x + 2)(3x - 2)$ B) $(3x + 2)^2$ C) prime D) $(3x - 2)^2$
 Answer: C

72) $9x^4 - 49y^4$
 A) $-40x^4$ B) prime
 C) $(3x - 7y)(3x + 7y)(3x^2 + 7y^2)$ D) $(3x^2 - 7y^2)(3x^2 + 7y^2)$
 Answer: D

73) $49pm^4 - 49pn^4$

A) $49p(m^2 + n^2)(m + n)(m - n)$

C) $49(m^2p + n^2)(mp + n)(mp - n)$

Answer: A

B) $p(7m^2 + n^2)(7m + n)(7m - n)$

D) $49p(m^2 - n^2)^2$

74) $x^4 - 256$

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

C) $(x^2 - 16)(x + 4)(x - 4)$

Answer: D

B) prime

D) $(x^2 + 16)(x + 4)(x - 4)$

75) $x^2 + 50x + 625$

A) $(x + 25)^2$

Answer: A

B) prime

C) $(x + 25)(x - 25)$

D) $(x - 25)^2$

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

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

Answer: D

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

C) Prime

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

77) $x^2 - 8xy + 16y^2$

A) prime

Answer: B

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

C) $(x - 4y)(x + 4y)$

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

78) $x^2 - 6x + 36$

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

Answer: D

B) $(x - 6)^2$

C) $(x + 6)^2$

D) prime

79) $147x^2 + 168x + 48$

A) $3(49x^2 + 56x + 16)$

Answer: C

B) $3(7x - 4)(7x + 4)$

C) $3(7x + 4)^2$

D) $(21x + 12)(7x + 4)$

80) $384x^2 - 96xy + 6y^2$

A) $6(64x^2 - 16xy + 1y)$

Answer: D

B) $(48x - 6y)(8x - 1y)$

C) $6(8x + 1y)(8x - 1y)$

D) $6(8x - 1y)^2$

Factor completely.

81) $125p^3 - 1$

A) $(5p - 1)(25p^2 + 1)$

C) $(5p - 1)(25p^2 + 5p + 1)$

Answer: C

B) $(125p - 1)(p^2 + 5p + 1)$

D) $(5p + 1)(25p^2 - 5p + 1)$

82) $x^3 - 8$

A) $(x + 8)(x^2 - 1)$

Answer: B

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

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

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

83) $729y^3 - 1,000$

A) $(9y - 10)(81y^2 + 100)$

C) $(9y + 10)(81y^2 - 90y + 100)$

B) $(729y - 10)(y^2 + 90y + 100)$

D) $(9y - 10)(81y^2 + 90y + 100)$

Answer: D

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

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

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

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

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

Answer: C

85) $128k^3m - 54m^4$

A) $2m(4k + 3m^2)(16k^2 - 12km + 9km^2)$

C) $2m(4k - 3m)(16k^2 + 12km + 9m^2)$

B) $2m(64k - 3m)(k^2 + 12km + 9m^2)$

D) $(8km - 6m^2)(16k^2 + 9m^2)$

Answer: C

86) $216s^3 + 1$

A) $(6s + 1)(36s^2 - 6s + 1)$

C) $(6s - 1)(36s^2 + 6s + 1)$

B) $(216s + 1)(s^2 - 6s + 1)$

D) $(6s + 1)(36s^2 + 1)$

Answer: A

87) $t^3 + 8$

A) $(t + 2)(t^2 + 4)$

B) $(t - 8)(t^2 - 1)$

C) $(t + 2)(t^2 - 2t + 4)$

D) $(t - 2)(t^2 + 2t + 4)$

Answer: C

88) $343c^3 + 729$

A) $(7c - 9)(49c^2 + 63c + 81)$

C) $(7c + 9)(49c^2 - 63c + 81)$

B) $(7c + 9)(49c^2 + 81)$

D) $(343c + 9)(c^2 - 63c + 81)$

Answer: C

Write the expression in lowest terms.

89) $\frac{4k}{14}$

A) $-\frac{4k}{14}$

B) $\frac{7}{2k}$

C) $\frac{2}{7}$

D) $\frac{2k}{7}$

Answer: D

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

A) 18

B) $18k^2$

C) $4k$

D) $4k^2$

Answer: D

91) $\frac{(5x - 6)}{-(6 - 5x)}$

A) -1

B) 1

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

D) $\frac{6 - 5x}{-6 + 5x}$

Answer: B

$$92) \frac{(y+7)(y-3)}{(y-3)(y+9)}$$

$$A) \frac{2y-3}{2y+6}$$

$$B) \frac{y+7}{y+9}$$

$$C) \frac{y+3}{y+6}$$

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

Answer: B

$$93) \frac{a^2 - 6a}{(a+7)(a-6)}$$

$$A) \frac{a}{a+7}$$

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

$$C) \frac{a-6}{a+7}$$

$$D) \frac{a^2}{a+7}$$

Answer: A

$$94) \frac{4x+2}{20x^2+26x+8}$$

$$A) \frac{4x+2}{20x^2+26x+8}$$

$$B) \frac{1}{5x+4}$$

$$C) \frac{4x+5}{5x+26}$$

$$D) \frac{4x}{5x+4}$$

Answer: B

$$95) \frac{y^2 - 5y - 36}{y^2 - 4y - 45}$$

$$A) \frac{-5y-36}{-4y-45}$$

$$B) -\frac{y^2-5y-36}{y^2-4y-45}$$

$$C) \frac{y+4}{y+5}$$

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

Answer: C

$$96) \frac{y^2 + 4y - 21}{y^2 + 3y - 28}$$

$$A) -\frac{y^2+4y-21}{y^2+3y-28}$$

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

$$C) \frac{4y-3}{3y-4}$$

$$D) \frac{4y-21}{3y-28}$$

Answer: B

$$97) \frac{a^2 - 36}{a^2 + 9a + 18}$$

$$A) \frac{a-6}{a-3}$$

$$B) \frac{a+6}{a+3}$$

$$C) \frac{a+6}{a-3}$$

$$D) \frac{a-6}{a+3}$$

Answer: D

$$98) \frac{16 - k^2}{k^2 + 3k - 28}$$

$$A) -\frac{k+4}{k+7}$$

$$B) -\frac{k-4}{k+7}$$

$$C) -\frac{k+4}{k-7}$$

$$D) \frac{k+4}{k+7}$$

Answer: A

Perform the indicated operation and simplify.

$$99) \frac{2x^2}{5} \cdot \frac{35}{x^3}$$

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

$$B) \frac{70x^2}{5x^3}$$

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

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

Answer: C

$$100) \frac{5p-5}{p} \cdot \frac{3p^2}{6p-6}$$

$$A) \frac{15p^3-15p^2}{6p^2-6p}$$

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

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

$$D) \frac{30p^2+60p+30}{3p^3}$$

Answer: C

$$101) \frac{2x^2}{3} \div \frac{x^3}{9}$$

$$A) \frac{18x^2}{3x^3}$$

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

$$C) \frac{6x^2}{x^3}$$

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

Answer: D

$$102) \frac{5p-5}{p} \div \frac{9p-9}{3p^2}$$

$$A) \frac{45p^2+90p+45}{3p^3}$$

$$B) \frac{3}{5p}$$

$$C) \frac{5p}{3}$$

$$D) \frac{15p^3-15p^2}{9p^2-9p}$$

Answer: C

$$103) \frac{k^2+12k+32}{k^2+13k+40} \cdot \frac{k^2+5k}{k^2+12k+32}$$

$$A) \frac{k}{k^2+13k+40}$$

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

$$C) \frac{1}{k+8}$$

$$D) \frac{k^2+5k}{k+8}$$

Answer: B

$$104) \frac{k^2+13k+36}{k^2+7k+12} \cdot \frac{k^2+10k+21}{k^2+16k+63}$$

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

$$B) \frac{k+3}{k+7}$$

$$C) \frac{k+9}{k+3}$$

$$D) 1$$

Answer: D

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

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

$$B) 1$$

$$C) x-y$$

$$D) x^2-y$$

Answer: B

$$106) \frac{z^2 + 13z + 40}{z^2 + 14z + 48} \div \frac{z^2 + 5z}{z^2 + 12z + 36}$$

A) $z + 6$

B) $\frac{z}{z^2 + 14z + 48}$

C) $\frac{z + 6}{z}$

D) $\frac{z + 6}{z^2 + 6z}$

Answer: C

$$107) \frac{36x^2 - 49}{x^2 - 1} \div \frac{6x - 7}{x + 1}$$

A) $\frac{x - 1}{6x + 7}$

B) $\frac{(6x - 7)(36x^2 - 49)}{(x^2 + 1)(x + 1)}$

C) $\frac{6x - 7}{x + 1}$

D) $\frac{6x + 7}{x - 1}$

Answer: D

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

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

B) $x + 3$

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

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

Answer: C

Perform the indicated operations and simplify.

$$109) \frac{7}{13x} + \frac{4}{13x}$$

A) $\frac{11}{26x}$

B) 1

C) $\frac{13x}{11}$

D) $\frac{11}{13x}$

Answer: D

$$110) \frac{2}{r} + \frac{5}{r - 4}$$

A) $\frac{8r - 7}{r(4 - r)}$

B) $\frac{8r - 7}{r(r - 4)}$

C) $\frac{7r - 8}{r(4 - r)}$

D) $\frac{7r - 8}{r(r - 4)}$

Answer: D

$$111) \frac{5}{r} + \frac{6}{r + 8}$$

A) $\frac{11r + 40}{r(-8 - r)}$

B) $\frac{-40r - 11}{r(r + 8)}$

C) $\frac{-40r - 11}{r(-8 - r)}$

D) $\frac{11r + 40}{r(r + 8)}$

Answer: D

$$112) \frac{m + 5}{m^2 + 9m + 18} + \frac{2m + 5}{m^2 + 11m + 30}$$

A) $\frac{3m^2 + 21m + 40}{(m - 6)(m - 3)(m - 5)}$

B) $\frac{3m + 10}{2m^2 + 20m + 48}$

C) $3m + 10$

D) $\frac{3m^2 + 21m + 40}{(m + 6)(m + 3)(m + 5)}$

Answer: D

$$113) \frac{4}{y^2 - 3y + 2} + \frac{6}{y^2 - 1}$$

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

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

$$C) \frac{48y - 8}{(y - 1)(y + 1)(y - 2)}$$

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

Answer: A

$$114) \frac{x}{x^2 - 16} - \frac{8}{x^2 + 5x + 4}$$

$$A) \frac{x^2 - 7x + 32}{(x - 4)(x + 4)(x + 1)}$$

$$B) \frac{x^2 - 7x + 32}{(x - 4)(x + 4)}$$

$$C) \frac{x^2 + 7x + 32}{(x - 4)(x + 4)(x + 1)}$$

$$D) \frac{x^2 - 7}{(x - 4)(x + 4)(x + 1)}$$

Answer: A

$$115) \frac{6}{z^2} - \frac{4}{z}$$

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

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

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

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

Answer: C

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

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

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

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

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

Answer: B

$$117) \frac{6}{3m^2 - 5mp - 2p^2} + \frac{4}{18m^2 + 3mp - p^2} - \frac{5}{6m^2 - 13mp + 2p^2}$$

$$A) \frac{25m - 19p}{(3m + p)(m - 2p)(6m - p)}$$

$$B) \frac{55m - 19p}{(3m + p)(m - 2p)(6m - p)}$$

$$C) \frac{55m - 9p}{(3m + p)(m - 2p)(6m - p)}$$

$$D) \frac{25m - 9p}{(3m + p)(m - 2p)(6m - p)}$$

Answer: A

$$118) \frac{25x}{3(5x + 1)} - \frac{1}{3x(5x + 1)} + \frac{12}{x}$$

$$A) \frac{25x^2 + 180x + 35}{3x}$$

$$B) \frac{5(x + 7)}{15x^2 + 3x}$$

$$C) \frac{25x^2 + 180x + 35}{15x^2 + 3x}$$

$$D) \frac{5(x + 7)}{3x}$$

Answer: D

Solve the equation.

$$119) 3x + 7 = 2 - 2x$$

$$A) -5$$

$$B) -1$$

$$C) \frac{9}{5}$$

$$D) 9$$

Answer: B

120) $7y - 8 = 10 + y$

A) 3

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

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

D) $\frac{9}{4}$

Answer: A

121) $8x + 4 = 4x - 12$

A) 4

B) -4

C) -16

D) -3

Answer: B

122) $0.4x - 0.2 = 0.3x + 0.4$

A) 0.2

B) 6

C) 2

D) 0.6

Answer: B

123) $-5.5q + 1.7 = -14.7 - 1.4q$

A) 4

B) 3.2

C) 3.0

D) -20

Answer: A

124) $\frac{p}{4} - \frac{3p}{8} = 5$

A) 40

B) -40

C) 35

D) -35

Answer: B

125) $\frac{7}{10}z - 6z + \frac{1}{5} = \frac{2}{5}$

A) $-\frac{2}{53}$

B) 2

C) $-\frac{6}{53}$

D) $-\frac{1}{53}$

Answer: A

126) $46(x - 184) = 92$

A) 92

B) 182

C) 186

D) 184

Answer: C

127) $7x - (4x - 1) = 2$

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

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

C) $-\frac{1}{11}$

D) $\frac{1}{11}$

Answer: B

128) $3(3x - 1) = 12$

A) $\frac{11}{9}$

B) $\frac{13}{9}$

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

D) 1

Answer: C

129) $(y - 8) - (y + 2) = 4y$

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

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

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

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

Answer: A

$$130) \frac{1}{4}(16x - 20) = \frac{1}{2}(10x - 8)$$

A) -1

B) $\frac{1}{20}$

C) -20

D) 1

Answer: A

$$131) (y - 7) - (y + 6) = 8y$$

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

B) $-\frac{13}{8}$

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

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

Answer: B

$$132) \frac{1}{2}(4x - 10) = \frac{1}{4}(20x - 8)$$

A) 1

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

C) -7

D) -1

Answer: D

$$133) -9b + 2 + 7b = -3b + 7$$

A) -2

B) -7

C) 7

D) 5

Answer: D

$$134) 4[3m - (2m + 3) + 4] = 5m + 6$$

A) -2

B) $\frac{10}{9}$

C) 22

D) -5

Answer: A

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

$$135) 9d^2 + 24d + 12 = 0$$

A) $\frac{1}{2}, \frac{3}{2}$

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

C) $-\frac{1}{2}, -\frac{2}{3}$

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

Answer: B

$$136) 15b^2 + 43b = -30$$

A) $-\frac{5}{6}, -\frac{5}{3}$

B) $\frac{5}{6}, \frac{3}{5}$

C) $\frac{6}{5}, \frac{5}{3}$

D) $-\frac{6}{5}, -\frac{5}{3}$

Answer: D

$$137) 9k^2 - 26k - 3 = 0$$

A) $-\frac{1}{9}, 9$

B) $-\frac{1}{9}, 3$

C) $\frac{1}{26}, -\frac{1}{9}$

D) -9, 3

Answer: B

$$138) 12m^2 - 9m = 0$$

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

B) 0

C) $-\frac{3}{4}, 0$

D) $\frac{3}{4}, 0$

Answer: D

139) $45n^2 + 12n = 0$

A) $\frac{4}{15}, 0$

B) $\frac{4}{15}, -\frac{4}{15}$

C) 0

D) $-\frac{4}{15}, 0$

Answer: D

140) $4m^2 + 10m + 2 = 0$

A) $\frac{-5 + \sqrt{33}}{4} \approx 0.186, \frac{-5 - \sqrt{33}}{4} \approx -2.686$

B) $\frac{-5 + \sqrt{17}}{8} \approx -0.110, \frac{-5 - \sqrt{17}}{8} \approx -1.140$

C) $\frac{-10 + \sqrt{17}}{4} \approx -1.469, \frac{-10 - \sqrt{17}}{4} \approx -3.531$

D) $\frac{-5 + \sqrt{17}}{4} \approx -0.219, \frac{-5 - \sqrt{17}}{4} \approx -2.281$

Answer: D

141) $5n^2 = -12n - 2$

A) $\frac{-12 + \sqrt{26}}{5} \approx -1.380, \frac{-12 - \sqrt{26}}{5} \approx -3.420$

B) $\frac{-6 + \sqrt{46}}{5} \approx 0.156, \frac{-6 - \sqrt{46}}{5} \approx -2.556$

C) $\frac{-6 + \sqrt{26}}{5} \approx -0.180, \frac{-6 - \sqrt{26}}{5} \approx -2.220$

D) $\frac{-6 + \sqrt{26}}{10} \approx -0.090, \frac{-6 - \sqrt{26}}{10} \approx -1.110$

Answer: C

142) $4x^2 + 12x = -7$

A) $\frac{-3 + \sqrt{1}}{2} \approx -1.000, \frac{-3 - \sqrt{1}}{2} \approx -2.000$

B) $\frac{-3 + \sqrt{2}}{8} \approx -0.198, \frac{-3 - \sqrt{2}}{8} \approx -0.552$

C) $\frac{-12 + \sqrt{2}}{2} \approx -5.293, \frac{-3 - \sqrt{2}}{8} \approx -0.552$

D) $\frac{-3 + \sqrt{2}}{2} \approx -0.793, \frac{-3 - \sqrt{2}}{2} \approx -2.207$

Answer: D

143) $x^2 - x = 6$

A) -2, -3

B) 1, 6

C) 2, 3

D) -2, 3

Answer: D

144) $x^2 + 2x - 63 = 0$

A) 9, 7

B) -9, 1

C) -9, 7

D) 9, -7

Answer: C

145) $1 + \frac{1}{x} = \frac{20}{x^2}$

A) $-\frac{1}{5}, \frac{1}{4}$

B) -4, 5

C) 4, 5

D) -5, 4

Answer: D

146) $\frac{4}{y+2} - \frac{7}{y-2} = \frac{11}{y^2-4}$

A) 11

B) $\sqrt{21} \approx 4.583$

C) 33

D) -11

Answer: D

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

A) 0, -3

B) No solution

C) 6, -2

D) 0, 4

Answer: C

$$148) \frac{10}{x-2} = 1 + \frac{12}{x+2}$$

A) 6, -8

B) No solution

C) -6, 8

D) -12, 8

Answer: A

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

A) -6

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

C) 6

D) 0

Answer: A

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

A) 2

B) -2

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

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

Answer: B

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

A) 8

B) -4

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

D) -8

Answer: D

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

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

B) 3

C) -3

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

Answer: B

$$153) \frac{6}{x^2-3x+2} + \frac{1}{x^2+4x-5} = \frac{5}{x^2+3x-10}$$

A) $-\frac{11}{4}$

B) $-\frac{33}{2}$

C) $\frac{33}{2}$

D) -2

Answer: B

$$154) \frac{6}{m+3} - \frac{5}{m-3} = \frac{-36}{m^2-9}$$

A) 6

B) No solution

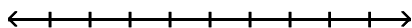
C) -3

D) 3

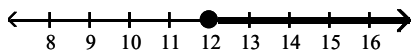
Answer: B

Write the expression in interval notation. Graph the interval.

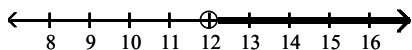
155) $x > 12$



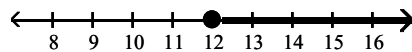
A) $[12, \infty]$



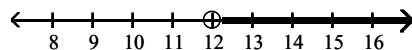
C) $(12, \infty)$



B) $[12, \infty)$

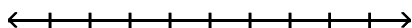


D) $(12, \infty]$

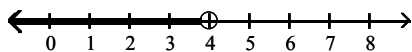


Answer: C

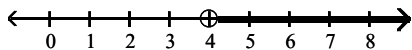
156) $x < 4$



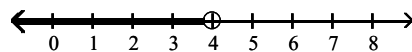
A) $[-\infty, 4)$



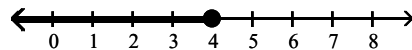
C) $(4, \infty)$



B) $(-\infty, 4)$

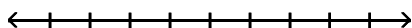


D) $(-\infty, 4]$

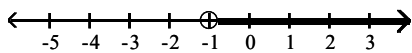


Answer: B

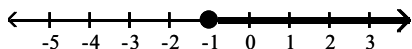
157) $x \geq -1$



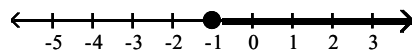
A) $(-1, \infty]$



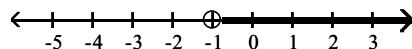
C) $[-1, \infty)$



B) $[-1, \infty]$

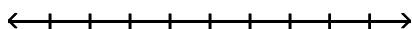


D) $(-1, \infty)$

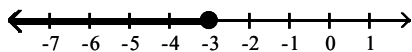


Answer: C

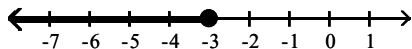
158) $x \leq -3$



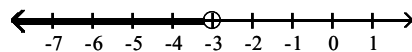
A) $(-\infty, -3]$



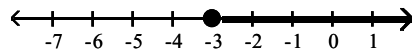
C) $[-\infty, -3]$



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

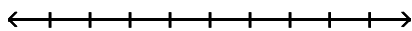


D) $[-3, \infty)$

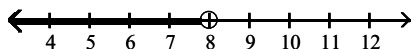


Answer: A

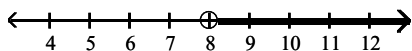
159) $8 \geq x$



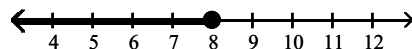
A) $[-\infty, 8)$



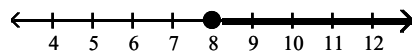
C) $(8, \infty)$



B) $(-\infty, 8]$

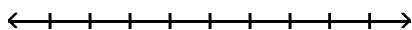


D) $[8, \infty)$

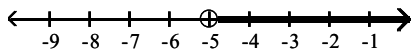


Answer: B

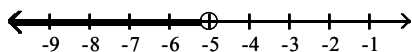
160) $-5 < x$



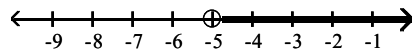
A) $(-5, \infty]$



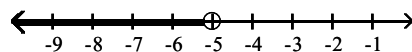
C) $[-\infty, -5)$



B) $(-5, \infty)$

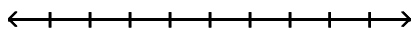


D) $(-\infty, -5)$

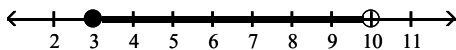


Answer: B

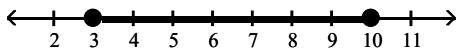
161) $3 < x < 10$



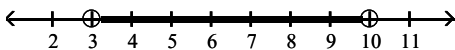
A) $[3, 10)$



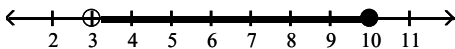
C) $[3, 10]$



B) $(3, 10)$

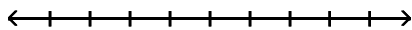


D) $(3, 10]$

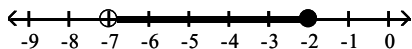


Answer: B

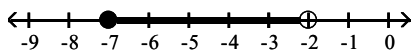
162) $-7 \leq x \leq -2$



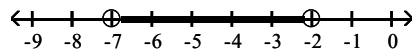
A) $(-7, -2]$



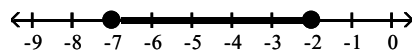
C) $[-7, -2)$



B) $(-7, -2)$

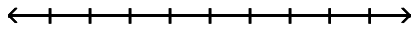


D) $[-7, -2]$

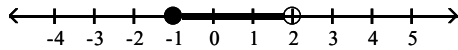


Answer: D

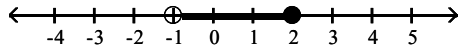
163) $-1 < x \leq 2$



A) $[-1, 2)$

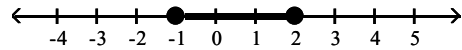


C) $(-1, 2]$

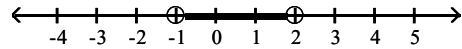


Answer: C

B) $[-1, 2]$



D) $(-1, 2)$



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

164) $(-1, 1]$

A) $-1 < x < 1$

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

C) $-1 < x \leq 1$

D) $x \leq 1$

Answer: C

165) $[-7, 2)$

A) $x < 2$

B) $-7 \leq x \leq 2$

C) $-7 < x \leq 2$

D) $-7 \leq x < 2$

Answer: D

166) $[-5, \infty)$

A) $x \leq -5$

B) $x \geq -5$

C) $x > -5$

D) $x < -5$

Answer: B

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

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

B) $5 \leq x \leq 7$

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

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

Answer: A

168) $\left[-\infty, \frac{5}{1}\right]$

A) $x < 5$

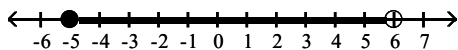
B) $1 \leq x \leq 5$

C) $x \leq 5$

D) $x > 5$

Answer: C

169)



A) $-5 < x \leq 6$

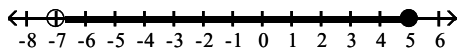
B) $-5 \leq x \leq 6$

C) $-5 < x < 6$

D) $-5 \leq x < 6$

Answer: D

170)



A) $-7 < x < 5$

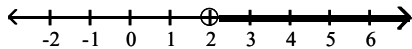
B) $-7 \leq x < 5$

C) $-7 < x \leq 5$

D) $-7 \leq x \leq 5$

Answer: C

171)



A) $x \geq 2$

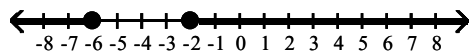
B) $x < 2$

C) $x \leq 2$

D) $x > 2$

Answer: D

172)



A) $-6 < x < -2$

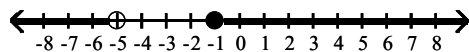
B) $-6 \leq x \leq -2$

C) $x < -6$ or $x > -2$

D) $x \leq -6$ or $x \geq -2$

Answer: D

173)



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

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

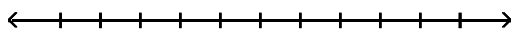
C) $-5 \leq x \leq -1$

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

Answer: A

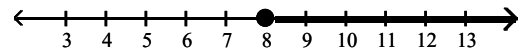
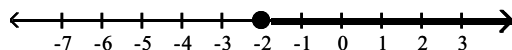
Solve the inequality and graph the solution.

174) $5x - 25 \geq 15$



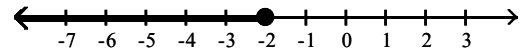
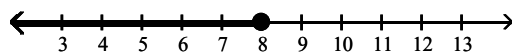
A) $[-2, \infty)$

B) $[8, \infty)$



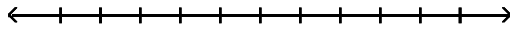
C) $(-\infty, 8]$

D) $(-\infty, -2]$

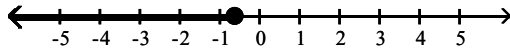


Answer: B

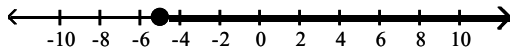
175) $10x - 7 \leq 2x - 12$



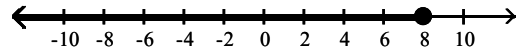
A) $\left[-\infty, -\frac{5}{8}\right]$



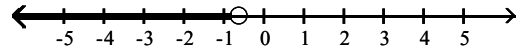
C) $[-5, \infty)$



B) $(-\infty, 8]$

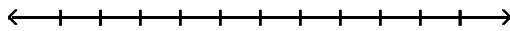


D) $\left(-\infty, -\frac{5}{8}\right)$

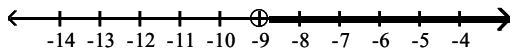


Answer: A

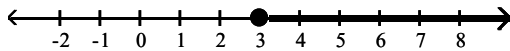
176) $5 - 9t + 11 \geq -10t + 19$



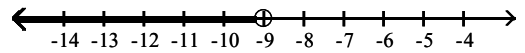
A) $(-9, \infty)$



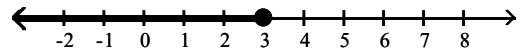
C) $[3, \infty)$



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

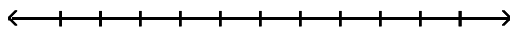


D) $(-\infty, 3]$

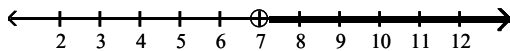


Answer: C

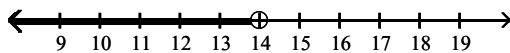
177) $14y + 8 > 2(6y + 11)$



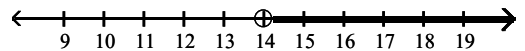
A) $(7, \infty)$



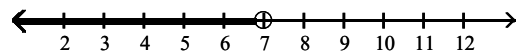
C) $(-\infty, 14)$



B) $(14, \infty)$

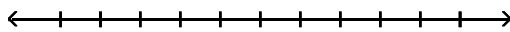


D) $(-\infty, 7)$

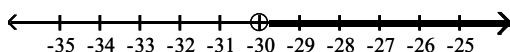


Answer: A

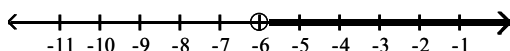
178) $-6(4y - 3) < -30y - 18$



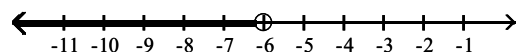
A) $(-30, \infty)$



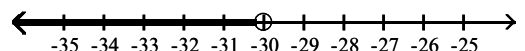
C) $(-6, \infty)$



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

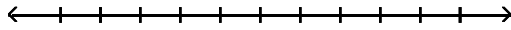


D) $(-\infty, -30)$

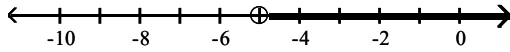


Answer: B

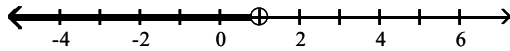
179) $m - 5(m + 6) < 2m$



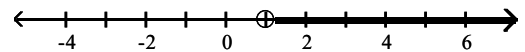
A) $(-5, \infty)$



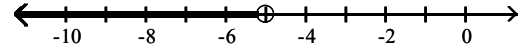
C) $(-\infty, 1)$



B) $(1, \infty)$

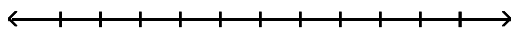


D) $(-\infty, -5)$

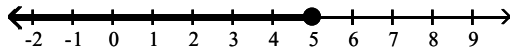


Answer: A

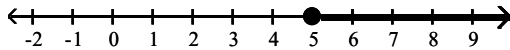
180) $50 - (2x + 5) \leq 5(x - 3) + 5x$



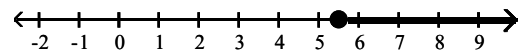
A) $(-\infty, 5]$



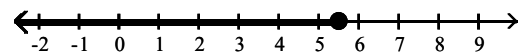
C) $[5, \infty)$



B) $\left[\frac{35}{6}, \infty\right)$

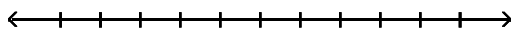


D) $\left(-\infty, \frac{35}{6}\right]$

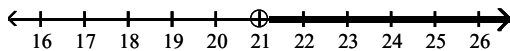


Answer: C

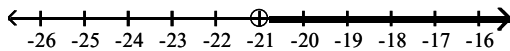
181) $3(x + 9) + 25x < 6(5x + 1) - 3x$



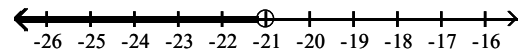
A) $(21, \infty)$



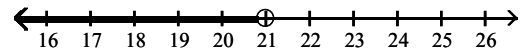
C) $(-21, \infty)$



B) $(-\infty, -21)$

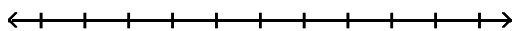


D) $(-\infty, 21)$

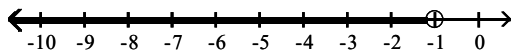


Answer: B

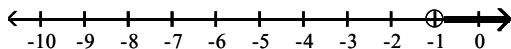
$$182) \frac{1}{2}(x - 2) > \frac{1}{6}(5x + 4)$$



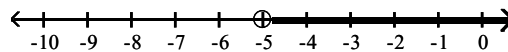
A) $(-\infty, -1)$



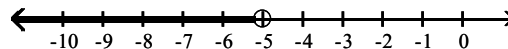
C) $(-1, \infty)$



B) $(-5, \infty)$

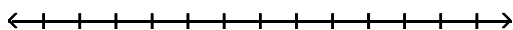


D) $(-\infty, -5)$

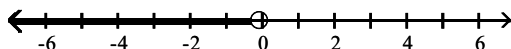


Answer: D

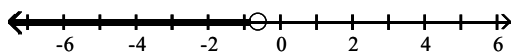
$$183) \frac{5}{4}(-1 + 3k) > \frac{3}{5}(3k - 4)$$



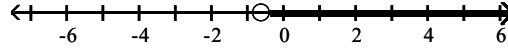
A) $\left(-\infty, -\frac{1}{13}\right)$



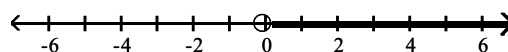
C) $\left(-\infty, -\frac{23}{39}\right)$



B) $\left(-\frac{23}{39}, \infty\right)$



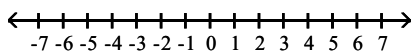
D) $\left(-\frac{1}{13}, \infty\right)$



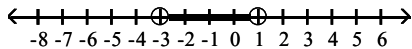
Answer: B

Solve the inequality, then graph the solution.

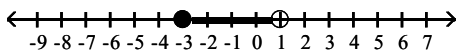
$$184) -2 < -2x \leq 6$$



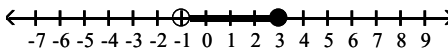
A) $(-3, 1)$



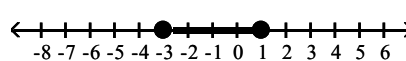
C) $[-3, 1)$



B) $(-1, 3]$

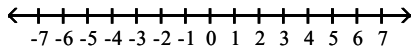


D) $[-3, 1]$

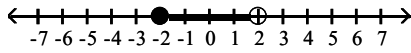


Answer: C

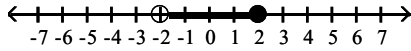
185) $-1 < 3y + 5 \leq 11$



A) $[-2, 2)$

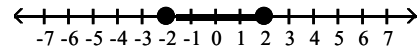


C) $(-2, 2]$

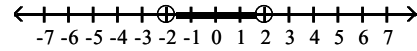


Answer: C

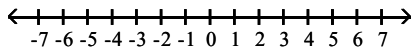
B) $[-2, 2]$



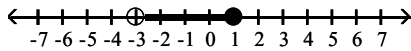
D) $(-2, 2)$



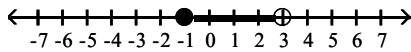
186) $0 < -5a + 5 \leq 20$



A) $(-3, 1]$

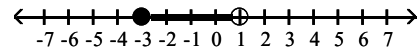


C) $[-1, 3)$

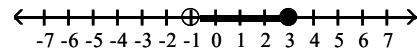


Answer: B

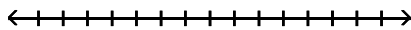
B) $[-3, 1)$



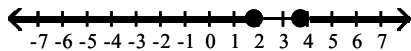
D) $(-1, 3]$



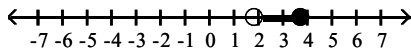
187) $3 < \frac{15x - 7}{7} < 7$



A) $\left(-\infty, \frac{28}{15}\right) \cup \left(\frac{56}{15}, \infty\right)$

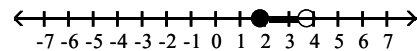


C) $\left(-\frac{56}{15}, \frac{28}{15}\right)$

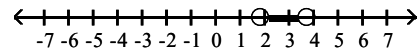


Answer: D

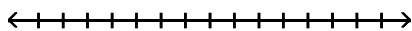
B) $\left[-\frac{28}{15}, \frac{56}{15}\right)$



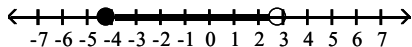
D) $\left(\frac{28}{15}, \frac{56}{15}\right)$



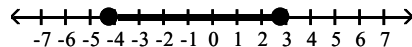
188) $-2 < \frac{4 - 5x}{5} \leq 5$



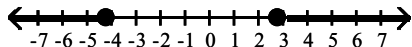
A) $\left[-\frac{21}{5}, \frac{14}{5}\right]$



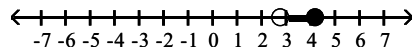
B) $\left[-\frac{21}{5}, \frac{14}{5}\right]$



C) $\left(-\infty, -\frac{21}{5}\right] \cup \left[\frac{14}{5}, \infty\right)$



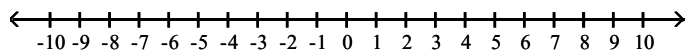
D) $\left[\frac{21}{5}, \frac{14}{5}\right]$



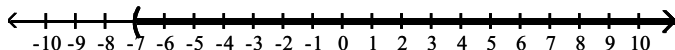
Answer: A

Solve the quadratic inequality. Graph the solution.

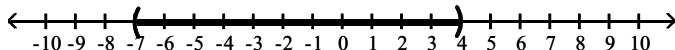
189) $(x - 4)(x + 7) > 0$



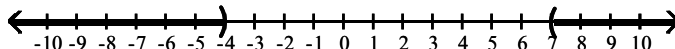
A) $(-7, \infty)$



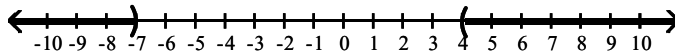
B) $(-7, 4)$



C) $(-\infty, -4) \cup (7, \infty)$



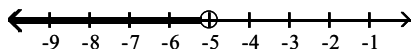
D) $(-\infty, -7) \cup (4, \infty)$



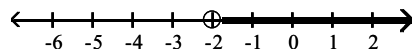
Answer: D

190) $p^2 + 7p + 10 > 0$

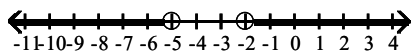
A) $(-\infty, -5)$



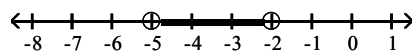
B) $(-2, \infty)$



C) $(-\infty, -5) \cup (-2, \infty)$



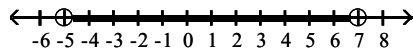
D) $(-5, -2)$



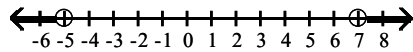
Answer: C

191) $s^2 - 2s - 35 < 0$

A) $(-5, 7)$

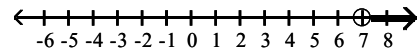


C) $(-\infty, -5) \cup (7, \infty)$

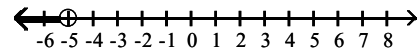


Answer: A

B) $(7, \infty)$

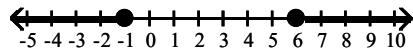


D) $(-\infty, -5)$

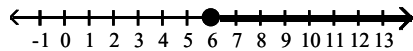


192) $t^2 - 5t - 6 \leq 0$

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

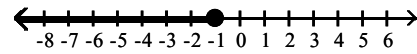


C) $[6, \infty)$

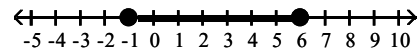


Answer: D

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

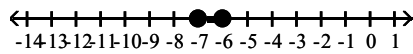


D) $[-1, 6]$

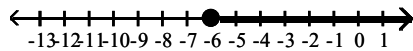


193) $v^2 + 13v + 42 \geq 0$

A) $[-7, -6]$

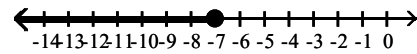


C) $[-6, \infty)$

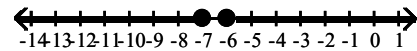


Answer: D

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



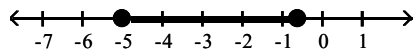
D) $(-\infty, -7] \cup [-6, \infty)$



194) $5x^2 + 4x + 3 \geq 0$

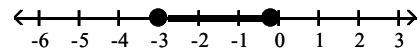
A) no solution

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

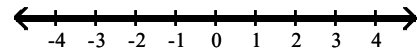


Answer: D

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

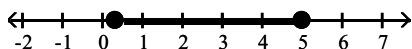


D) $(-\infty, \infty)$

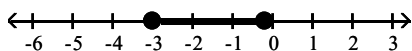


195) $-3x^2 + 3x - 5 \leq 0$

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



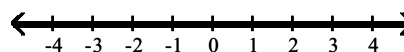
C) $\left[-3, -\frac{1}{5}\right]$



Answer: D

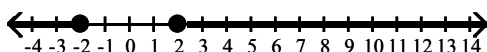
B) no solution

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

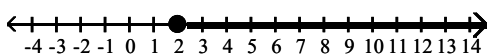


196) $x^2 \geq 4$

A) $(-\infty, -2] \cup [2, \infty)$

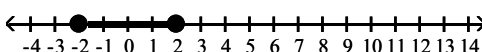


C) $[2, \infty)$

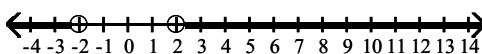


Answer: A

B) $[-2, 2]$

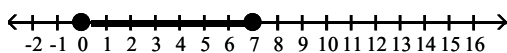


D) $(-\infty, -2) \cup (2, \infty)$

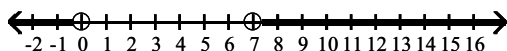


197) $y^2 - 7y < 0$

A) $[0, 7]$

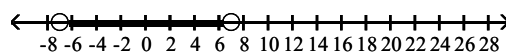


C) $(-\infty, 0) \cup (7, \infty)$

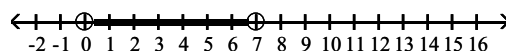


Answer: D

B) $(-7, 7)$



D) $(0, 7)$



Solve the inequality.

198) $\frac{-2}{-5x - 6} > 0$

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

B) $(0, \infty)$

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

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

Answer: C

199) $\frac{x + 26}{x + 4} < 3$

A) $(-\infty, -4) \cup (7, \infty)$

B) $(7, 4)$

C) $(-4, 7)$

D) $(-\infty, 7) \cup (4, \infty)$

Answer: A

$$200) \frac{5}{x+2} > \frac{3}{2}$$

A) no solution

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

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

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

Answer: B

$$201) \frac{5}{(x+6)^2} < 0$$

A) no solution

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

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

$$D) (-3.76, \infty)$$

Answer: A

$$202) \frac{7}{x-1} > \frac{6}{x-1}$$

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

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

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

D) no solution

Answer: C

$$203) \frac{2x+3}{x-2} \geq 1$$

$$A) (-\infty, -5] \cup (2, \infty)$$

$$B) [-5, \infty)$$

$$C) (-\infty, -5] \cup [2, \infty)$$

$$D) [-5, 2)$$

Answer: A

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

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

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

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

$$D) (1, 2]$$

Answer: C

Evaluate the expression. Write your answer without exponents.

$$205) 2^{-4}$$

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

$$B) 16$$

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

$$D) -16$$

Answer: A

$$206) \frac{1}{6^{-3}}$$

$$A) 1,296$$

$$B) 216$$

$$C) 18$$

$$D) 36$$

Answer: B

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

$$A) \frac{27}{4}$$

$$B) \frac{8}{81}$$

$$C) \frac{4}{27}$$

$$D) \frac{81}{8}$$

Answer: A

$$208) \frac{1}{-9-3}$$

A) -729

B) 81

C) -81

D) 729

Answer: A

$$209) (-4)^{-1}$$

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

B) -4

C) 4

D) $-\frac{1}{4}$

Answer: D

$$210) (-2)^{-4}$$

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

B) -16

C) 16

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

Answer: D

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

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

B) 16

C) -16

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

Answer: D

$$212) 12^0$$

A) 0

B) 1

C) 12

D) -1

Answer: B

$$213) (-5)^0$$

A) 1

B) -1

C) -5

D) 0

Answer: A

$$214) \left(\frac{5}{8}\right)^{-4}$$

A) $\frac{1}{625}$

B) $\frac{625}{4096}$

C) $\frac{8}{625}$

D) $\frac{4096}{625}$

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.

$$215) \frac{8^4 m \cdot 8^6 m}{8^3 m}$$

A) $8^{13}m$

B) $\frac{m}{8^{13}}$

C) 8^7m

D) $\frac{m}{8^7}$

Answer: C

$$216) \frac{8^{-9}p \cdot 8^{-2}p}{8^3p^3}$$

$$A) \frac{1}{8^{14}p}$$

$$B) \frac{1}{8^8p}$$

$$C) 8^{14}p$$

$$D) \frac{8^8}{p}$$

Answer: A

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

$$A) 8^6$$

$$B) 2^6$$

$$C) 2^3$$

$$D) 1$$

Answer: B

$$218) \frac{(2x)^{10}}{x^{10}}$$

$$A) 2^{10}$$

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

$$C) 2$$

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

Answer: A

$$219) \frac{x^{-6}}{(9x)^{-6}}$$

$$A) 9x$$

$$B) 9$$

$$C) 9^6$$

$$D) \frac{1}{9^6}$$

Answer: C

$$220) \frac{x^4(x^{-7})^{-9}}{(x^{-2})^{-9}}$$

$$A) x^{23}$$

$$B) x^{49}$$

$$C) \frac{1}{x^{77}}$$

$$D) x^{77}$$

Answer: B

$$221) \frac{x^8(x^9)^{-4}}{(x^{-9})^{-5}}$$

$$A) \frac{1}{x^{73}}$$

$$B) \frac{1}{x^{17}}$$

$$C) x^{73}$$

$$D) x^{27}$$

Answer: A

$$222) \left(\frac{x^{-4}y^3}{y^{-3}} \right)^{-2}$$

$$A) \frac{1}{x^8y^{12}}$$

$$B) \frac{y^{12}}{x^8}$$

$$C) \frac{x^8}{y^{12}}$$

$$D) \frac{x^8}{y^9}$$

Answer: C

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

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

B) $\frac{x^5}{y^6}$

C) $\frac{1}{x^5y^3}$

D) $\frac{y^3}{x^{10}}$

Answer: A

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

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

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

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

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

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

Answer: B

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

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

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

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

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

Answer: C

$$226) (4k)^{-1} + 3m^{-1}$$

A) $\frac{m + 12k}{4k}$

B) $\frac{m + 12k}{3m}$

C) $\frac{m + 12k}{4km}$

D) $\frac{m - 12k}{3km}$

Answer: C

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

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

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

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

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

Answer: B

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

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

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

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

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

Answer: D

$$229) \frac{-9a^{-1} + 6b^{-1}}{(-5ab)^{-1}}$$

A) $\frac{-9b + 6a}{-5}$

B) $-30b + 45a$

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

D) $45b - 30a$

Answer: D

$$230) \frac{2xy^{-1} + 5yx^{-1}}{2x^2 + 5y^2}$$

A) 1

B) xy

C) $\frac{1}{10xy}$

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

Answer: D

$$231) (4a^{-1} + 7b^{-1})^{-1}$$

A) $\frac{ab}{4b + 7a}$

B) $\frac{7a + 4b}{ab}$

C) $\frac{ab}{7b + 4a}$

D) $\frac{28ab}{7a + 4b}$

Answer: A

$$232) \frac{(5m + 4n)^{-1}}{16m^{-2} - 25n^{-2}}$$

A) $\frac{m^2n^2}{(4n + 5m)^2(4n - 5m)}$

B) $\frac{9}{16m^{-1} - 25n^{-1}}$

C) $\frac{m^2n^2}{(4n + 5m)(4n - 5m)^2}$

D) $\frac{400m^2n^2}{(4n + 5m)(4n - 5m)^2}$

Answer: A

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

A) $\frac{216y + 3x^3}{648}$

B) $\frac{216y + 3x^3}{x^3y}$

C) $\frac{216y + 3x}{xy}$

D) $\frac{648 + x^3y}{216y}$

Answer: B

Evaluate the expression.

$$234) 289^{1/2}$$

A) 17

B) 68

C) 34

D) 8.5

Answer: A

$$235) 343^{1/3}$$

A) 2,401

B) 21

C) 7,203

D) 7

Answer: D

$$236) 2,401^{1/4}$$

A) 28

B) 7

C) 196

D) 16,807

Answer: B

$$237) -32^{1/5}$$

A) 16

B) -8

C) -2

D) 32

Answer: C

$$238) \left(\frac{16}{81} \right)^{1/2}$$

$$A) \frac{3}{10}$$

$$B) \frac{3}{9}$$

$$C) \frac{4}{10}$$

$$D) \frac{4}{9}$$

Answer: D

$$239) 8^{4/3}$$

$$A) 128$$

$$B) 64$$

$$C) 32$$

$$D) 16$$

Answer: D

$$240) 625^{5/4}$$

$$A) 3,125$$

$$B) 78,125$$

$$C) 390,625$$

$$D) 1,953,125$$

Answer: A

$$241) 1,024^{4/5}$$

$$A) 16,384$$

$$B) 65,536$$

$$C) 262,144$$

$$D) 256$$

Answer: D

$$242) 64^{-4/3}$$

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

$$B) -256$$

$$C) \frac{1}{256}$$

$$D) -\frac{1}{256}$$

Answer: C

$$243) \left(\frac{125}{512} \right)^{-2/3}$$

$$A) \frac{64}{25}$$

$$B) -\frac{25}{64}$$

$$C) \frac{25}{64}$$

$$D) \frac{64}{125}$$

Answer: A

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

$$244) 3a^{3/2} \cdot 3a^{-9/2}$$

$$A) 3a^{-6}$$

$$B) \frac{9}{a^3}$$

$$C) \frac{a^3}{9}$$

$$D) \frac{3}{a^4}$$

Answer: B

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

$$A) x^{4/5}y^7$$

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

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

$$D) x^4y^{14}$$

Answer: A

$$246) \frac{5^{-2/3} 5^5 x^{-8}}{5^{1/3} x^{-2}}$$

$$A) \frac{5^6}{x^{10}}$$

$$B) \frac{5^4}{x^6}$$

$$C) 5 x^{10}$$

$$D) 5^4 x^9$$

Answer: B

$$247) \frac{3 k^{-9} (6 k^{-2})^{-1}}{6 k^{3/2}}$$

$$A) - \frac{1}{12 k^{18}}$$

$$B) \frac{3}{k^{21/2}}$$

$$C) \frac{1}{12 k^{17/2}}$$

$$D) - 6 k^{19}$$

Answer: C

$$248) \frac{5^{1/5} m^{-5}}{5^{-8/5} m^{-8}}$$

$$A) -5^{7/5} m^3$$

$$B) \frac{5^{9/5}}{m^3}$$

$$C) 5^{9/5} m^3$$

$$D) 10^{9/25} m^4$$

Answer: C

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

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

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

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

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

Answer: D

$$250) \frac{3^{1/5} x^{-10}}{3^{-8} x^{-11}}$$

$$A) \frac{3^{43/5}}{x}$$

$$B) 3^{41/5} x$$

$$C) 3^{39/5} x$$

$$D) \frac{x}{3^8}$$

Answer: B

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

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

$$B) xy^{1/3}$$

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

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

Answer: D

$$252) \frac{m^{-2/3} n^{-2/5} p^{13/8}}{m^{10/3} n^{13/5} p^{-3/8}}$$

$$A) \frac{p^2}{m^{11/3} n^3}$$

$$B) \frac{p^3}{m^{14/3} n^3}$$

$$C) \frac{m^4}{n^3 p^2}$$

$$D) \frac{p^2}{m^4 n^3}$$

Answer: D

$$253) \frac{k^{-1/5} \cdot m^{-1/9} \cdot n^{8/7}}{k^{3/5} \cdot m^{-5/9} \cdot n^{-2/7}}$$

$$A) \frac{m^{4/9} \cdot n^{6/7}}{k^{4/5}}$$

$$B) \frac{m^{4/9} \cdot n^{10/7}}{k^{4/5}}$$

$$C) \frac{m^{4/9} \cdot n^{10/7}}{k^{2/5}}$$

$$D) \frac{n^{10/7}}{k^{2/5} \cdot m^{4/9}}$$

Answer: B

Factor the expression.

$$254) (a + 4)(m - 9) + (a + 4)(m + 8)$$

$$A) (a + 4)(m - 1)$$

$$B) (a + 4)(m^2 - 1)$$

$$C) (a + 4)(m + 1)$$

$$D) (a + 4)(2m - 1)$$

Answer: D

$$255) (7q + 5)(12q + 7) + (7q + 5)(q - 7)$$

$$A) (14q + 10)(13q)$$

$$B) (7q + 5)(13q - 14)$$

$$C) (7q + 5)(13q + 14)$$

$$D) (7q + 5)(13q)$$

Answer: D

$$256) 3(x + y)^3 - 6(x + y)^2 + 9(x + y)^4$$

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

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

$$B) 3(x + y)^2[x + y - 2 + 3(x + y)^2]$$

$$D) 3(x + y)[(x + y)^2 - 2(x + y) + 3(x + y)^3]$$

Answer: B

$$257) 20(p + 3)^2 + 17(p + 3) + 3$$

$$A) (4p + 1)(5p + 3)$$

$$B) (4p + 13)(5p + 18)$$

$$C) (4p + 4)(5p + 6)$$

$$D) (4p + 15)(5p + 16)$$

Answer: B

$$258) 15(m - 1)^2 - 11(m - 1) - 12$$

$$A) (3m + 5)(5m + 4)$$

$$B) (3m + 4)(5m + 3)$$

$$C) (3m + 6)(5m + 9)$$

$$D) (3m - 7)(5m - 2)$$

Answer: D

$$259) a^2(a + b)^2 - ab(a + b)^2 - 12b^2(a + b)^2$$

$$A) (a - 4b)(a + 3b)(a + b)$$

$$C) (a + b)^2(a - 4b)(a + 3b)$$

$$B) (a + b)^2(a - 4)(a + 3)$$

$$D) (a + b)^2(a - 3b)(a + 4b)$$

Answer: C

$$260) 4x^2(x^2 + 3)^2 - 2x(5x^3 + 1)(x^2 + 3)$$

$$A) 2x(x^2 + 3)(-3x^3 + 6x + 1)$$

$$C) 2x(x^2 + 3)(-3x^3 + 6x - 1)$$

$$B) 2x(x^2 + 3)^2(-3x^3 + 6x - 1)$$

$$D) 2x(x^2 + 3)(-5x^3 + 2x^2 + 5)$$

Answer: C

$$261) 3m^{4/5} + 9m^{-1/5}$$

$$A) m^{-1/5}(3m - 9)$$

$$B) m^{1/5}(3m + 9)$$

$$C) m^{-1/5}(3m + 9)$$

$$D) m^{-1/5}(3m^{1/5} + 9)$$

Answer: C

$$262) x(2x + 5)^2(x^2 - 6)^{-1/2} + 3(x^2 - 6)^{1/2}(2x + 5)$$

$$A) (2x + 5)(x^2 - 6)^{-1/2}(3x^2 + 2x - 13)$$

$$C) (2x + 5)^2(x^2 - 6)^{-1/2}(3x^2 + x - 18)$$

Answer: B

$$B) (2x + 5)(x^2 - 6)^{-1/2}(5x^2 + 5x - 18)$$

$$D) (2x + 5)(x^2 - 6)^{1/2}(5x^2 + 5x - 18)$$

$$263) (x - 4)^{-3/2} - (x - 4)^{-1/2} + (x - 4)^{1/2}$$

$$A) (x - 4)^{-3/2}(x^2 - 9x - 17)$$

$$C) (x - 4)^{-3/2}(x^2 + 9x - 21)$$

Answer: B

$$B) (x - 4)^{-3/2}(x^2 - 9x + 21)$$

$$D) (x - 4)^{3/2}(x^2 + 8x - 21)$$

Simplify. Assume that all variables represent positive real numbers.

$$264) \sqrt{63}$$

$$A) 7$$

$$B) 3$$

$$C) 3\sqrt{7}$$

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

Answer: C

$$265) -\sqrt{108}$$

$$A) -36\sqrt{3}$$

$$B) -6\sqrt{3}$$

$$C) 6$$

$$D) 10$$

Answer: B

$$266) \sqrt[3]{320}$$

$$A) 5\sqrt[3]{4}$$

$$B) 17$$

$$C) 4\sqrt[3]{5}$$

$$D) 6$$

Answer: C

$$267) \sqrt[4]{405}$$

$$A) 5\sqrt[4]{3}$$

$$B) 3\sqrt[4]{5}$$

$$C) 20$$

$$D) 4$$

Answer: B

$$268) -\sqrt[4]{3,750}$$

$$A) -5\sqrt[4]{6}$$

$$B) 7$$

$$C) -6\sqrt[4]{5}$$

$$D) -7$$

Answer: A

$$269) \sqrt[3]{-64}$$

$$A) -16$$

$$B) -4$$

$$C) 4$$

$$D) 16$$

Answer: B

$$270) \sqrt{384x^2}$$

$$A) 6x^2\sqrt{8}$$

$$B) 384x$$

$$C) 8\sqrt{6x}$$

$$D) 8x\sqrt{6}$$

Answer: D

271) $\sqrt{98k^7q^8}$
 A) $(7q^4)\sqrt{2k^7}$ B) $(7k^7q^8)\sqrt{2k}$ C) $(7k^3q^4)\sqrt{2k}$ D) $(7k^3q^4)\sqrt{2}$
 Answer: C

272) $\sqrt[3]{343x^4y^5}$
 A) $7xy(\sqrt[2]{xy^2})$ B) $5xy(\sqrt[3]{xy^2})$ C) $7xy(\sqrt[3]{xy^2})$ D) $7xy(\sqrt[3]{xy})$
 Answer: C

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) $\sqrt{15} \cdot \sqrt{15}$
 A) 225 B) $\sqrt{225}$ C) 30 D) 15
 Answer: D

275) $\sqrt{2} \cdot \sqrt{18}$
 A) 12 B) 36 C) 72 D) 6
 Answer: D

276) $\sqrt{294} \cdot \sqrt{6}$
 A) $6\sqrt{7}$ B) 42 C) $7\sqrt{6}$ D) 1,764
 Answer: B

277) $\sqrt{2} \cdot \sqrt{14}$
 A) $2\sqrt{7}$ B) 14 C) $7\sqrt{2}$ D) $4\sqrt{7}$
 Answer: A

278) $\sqrt{15} \cdot \sqrt{48}$
 A) $-20\sqrt{3}$ B) $12\sqrt{5}$ C) $-12\sqrt{5}$ D) $20\sqrt{3}$
 Answer: B

279) $\sqrt{11x^3} \cdot \sqrt{11x^5}$
 A) $\sqrt{11x^4}$ B) $x^4\sqrt{22}$ C) $\sqrt{121x^8}$ D) $11x^4$
 Answer: D

280) $\sqrt[5]{t} \cdot \sqrt{t}$
 A) $\sqrt[10]{t^7}$ B) $\sqrt[7]{2t}$ C) $\sqrt[7]{t^2}$ D) $\sqrt[5]{t^2}$
 Answer: A

$$281) \sqrt[6]{w} \cdot \sqrt[5]{w^2}$$

$$A) \sqrt[11]{w^2}$$

$$B) \sqrt[11]{w^3}$$

$$C) \sqrt[30]{w^3}$$

$$D) \sqrt[30]{w^{17}}$$

Answer: D

$$282) \sqrt{m} \cdot \sqrt[4]{m^{13}}$$

$$A) m^3 \sqrt[4]{m^3}$$

$$B) \sqrt[4]{m}$$

$$C) m^6 \sqrt[4]{m}$$

$$D) m^6 \sqrt{m}$$

Answer: A

Perform the indicated operations and simplify. Assume all variables represent positive real numbers.

$$283) 4\sqrt{245} + 7\sqrt{180} - 9\sqrt{125}$$

$$A) 25\sqrt{5}$$

$$B) -262\sqrt{5}$$

$$C) 262\sqrt{5}$$

$$D) 4\sqrt{5}$$

Answer: A

$$284) \sqrt{75} - 2\sqrt{108} + 8\sqrt{147}$$

$$A) -33\sqrt{3}$$

$$B) -49\sqrt{3}$$

$$C) 49\sqrt{3}$$

$$D) -108\sqrt{3}$$

Answer: C

$$285) \sqrt{2} - 4\sqrt{200} - 3\sqrt{128}$$

$$A) -7\sqrt{330}$$

$$B) -63\sqrt{2}$$

$$C) -63\sqrt{330}$$

$$D) -7\sqrt{2}$$

Answer: B

$$286) \sqrt{2a} + 3\sqrt{72a} + 2\sqrt{8a}$$

$$A) 5\sqrt{2a}$$

$$B) 23\sqrt{2a}$$

$$C) 23\sqrt{82a}$$

$$D) 5\sqrt{82a}$$

Answer: B

$$287) \sqrt{6x^2} + 2\sqrt{150x^2} - 5\sqrt{150x^2}$$

$$A) -14x\sqrt{142}$$

$$B) -3x\sqrt{142}$$

$$C) -14x\sqrt{6}$$

$$D) -3x\sqrt{6}$$

Answer: C

$$288) \sqrt{2} + 2\sqrt{162} + 5\sqrt{72}$$

$$A) 12\sqrt{2}$$

$$B) -49\sqrt{2}$$

$$C) -12\sqrt{2}$$

$$D) 49\sqrt{2}$$

Answer: D

$$289) 10\sqrt[3]{3} + 4\sqrt[3]{3}$$

$$A) 14\sqrt[3]{6}$$

$$B) -6\sqrt[3]{3}$$

$$C) 14\sqrt[3]{9}$$

$$D) 14\sqrt[3]{3}$$

Answer: D

$$290) 5\sqrt[3]{2} - 3\sqrt[3]{54}$$

$$A) 5\sqrt[3]{2} - 3\sqrt[3]{54}$$

$$B) 4\sqrt[3]{2}$$

$$C) -4\sqrt[3]{2}$$

$$D) 2\sqrt[3]{2}$$

Answer: C

291) $11\sqrt[4]{x^7} - 4x\sqrt[4]{x^3}$

A) $15\sqrt[4]{x^3}$

B) $11\sqrt[4]{x^7} - 4x\sqrt[4]{x^3}$

C) $7x\sqrt[4]{x^3}$

D) $7x\sqrt[4]{x^7}$

Answer: C

292) $3\sqrt[3]{a} + \sqrt[3]{8a}$

A) $5\sqrt[3]{a}$

B) $6\sqrt[3]{a}$

C) $4\sqrt[3]{8a}$

D) $3\sqrt[3]{a} + \sqrt[3]{8a}$

Answer: A

Simplify the root, if possible.

293) $\sqrt{16x^2 + 16x + 4}$

A) $4x + 2$

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

B) $|4x + 2|$

D) cannot be simplified

Answer: B

294) $\sqrt{4m^2 + 9n^2}$

A) $|2m + 3n|$

C) $(2m + 3n)^2$

B) cannot be simplified

D) $2m + 3n$

Answer: B

295) $\sqrt{z^2 - 6z + 9}$

A) $|z - 3|$

B) $z - 3$

C) $|z| - 3$

D) $-z + 3$

Answer: A

Rationalize the denominator. Assume that all radicands represent positive real numbers.

296) $-\sqrt{\frac{49}{8}}$

A) $-\frac{7\sqrt{2}}{4}$

B) -8

C) $-\frac{7\sqrt{2}}{2}$

D) $-7\sqrt{2}$

Answer: A

297) $\frac{4}{5 - \sqrt{6}}$

A) $\frac{20 + 4\sqrt{6}}{19}$

B) $\frac{4}{5} - \frac{4}{\sqrt{6}}$

C) $\frac{20 - 4\sqrt{6}}{19}$

D) $\frac{20 + 4\sqrt{6}}{1}$

Answer: A

298) $\frac{\sqrt{7}}{\sqrt{3} + 7}$

A) $\frac{3\sqrt{21} + 37}{21}$

B) $\frac{\sqrt{21} + 7\sqrt{7}}{-46}$

C) $\frac{\sqrt{21} - 7\sqrt{7}}{-46}$

D) $\frac{\sqrt{21} - 7\sqrt{7}}{10}$

Answer: C

$$299) \frac{1 - \sqrt{10}}{1 + \sqrt{10}}$$

$$A) \frac{11 - 2\sqrt{10}}{-9}$$

$$B) \frac{-9 - 2\sqrt{10}}{11}$$

$$C) \frac{11 + 2\sqrt{10}}{-9}$$

$$D) 1$$

Answer: A

$$300) \frac{\sqrt{7}}{7\sqrt{6} - \sqrt{7}}$$

$$A) \frac{1}{41} (\sqrt{42} + 1)$$

$$B) \frac{1}{41} (\sqrt{6} + 1)$$

$$C) \frac{1}{41} (\sqrt{42} - 1)$$

$$D) \frac{1}{43} (\sqrt{42} + 1)$$

Answer: A

$$301) \frac{4}{\sqrt{x} - 3}$$

$$A) \frac{16}{x + 9}$$

$$B) \frac{4\sqrt{x} - 12}{x + 9}$$

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

$$D) \frac{4\sqrt{x} + 12}{x - 9}$$

Answer: D

$$302) \frac{6\sqrt{x} + 4}{6\sqrt{x} - 4}$$

$$A) \frac{36x + 48\sqrt{x} + 16}{36x - 16}$$

$$B) \frac{36x - 16}{36x - 16}$$

$$C) \frac{36x + 16}{36x - 16}$$

$$D) \frac{6x + 48\sqrt{x} + 16}{36x - 16}$$

Answer: A

$$303) \frac{8x}{\sqrt{5x} - 1}$$

$$A) \frac{64x^2}{5x - 1}$$

$$B) \frac{64x^2 \sqrt{5x + 1}}{5x + 1}$$

$$C) \frac{8x\sqrt{5x - 1}}{5x + 1}$$

$$D) \frac{8x\sqrt{5x - 1}}{5x - 1}$$

Answer: D

$$304) \frac{-8}{\sqrt{7}}$$

$$A) \frac{-8\sqrt{7}}{7}$$

$$B) -8\sqrt{7}$$

$$C) -\frac{8}{7}$$

$$D) \frac{-8\sqrt{8}}{7}$$

Answer: A

$$305) \frac{\sqrt{y} - \sqrt{y + 5}}{\sqrt{y} + \sqrt{y + 5}}$$

$$A) \frac{-5}{2y + 5}$$

$$B) \frac{2y + 5 - 2\sqrt{y(y + 5)}}{5}$$

$$C) \frac{-2y - 5 + 2\sqrt{y(y + 5)}}{5}$$

$$D) \frac{-2y - 5}{5}$$

Answer: C

Rationalize the numerator. Assume that all radicands represent positive real numbers.

$$306) \frac{\sqrt{13} + 2}{2}$$

$$A) \frac{10}{2\sqrt{13} - 1}$$

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

$$C) \frac{9}{2\sqrt{13} - 4}$$

$$D) \frac{13}{\sqrt{13} - 1}$$

Answer: C

$$307) \frac{2 - \sqrt{7}}{8 - \sqrt{6}}$$

$$A) \frac{-3}{16 + 8\sqrt{7} - 2\sqrt{6} - \sqrt{42}}$$

$$B) \frac{-3}{16 - 8\sqrt{7} - 2\sqrt{6} - \sqrt{42}}$$

$$C) \frac{-3}{16 + 8\sqrt{7} - 2\sqrt{6} - 42}$$

$$D) \frac{-3}{16 + 6\sqrt{1} - 42}$$

Answer: A

$$308) \frac{3 + \sqrt{2}}{9 + \sqrt{5}}$$

$$A) \frac{7}{27 + 9\sqrt{2} - 3\sqrt{5} - \sqrt{10}}$$

$$B) \frac{7}{27 - 9\sqrt{2} + 3\sqrt{5} - \sqrt{10}}$$

$$C) \frac{7}{27 - 9\sqrt{2} - 3\sqrt{5} - 10}$$

$$D) \frac{7}{27 - 12\sqrt{7} - 10}$$

Answer: B

$$309) \frac{\sqrt{x} + \sqrt{y}}{8x}$$

$$A) \frac{x + y}{-8x\sqrt{x} + 8x\sqrt{y}}$$

$$B) -\frac{y}{8\sqrt{x} - 8\sqrt{y}}$$

$$C) \frac{x - y}{8x\sqrt{x} - 8x\sqrt{y}}$$

$$D) \frac{8x - 8y}{x\sqrt{x} - x\sqrt{y}}$$

Answer: C

$$310) \frac{\sqrt{m} - \sqrt{n}}{2 + \sqrt{n}}$$

$$A) \frac{m - n}{2\sqrt{m} + 2\sqrt{n} + \sqrt{mn} + n}$$

$$B) \frac{m - n}{2\sqrt{m} + n}$$

$$C) \frac{m - 1}{2\sqrt{m} + 2\sqrt{n} + \sqrt{mn}}$$

$$D) \frac{m + n}{2\sqrt{m} - 2\sqrt{n} - \sqrt{mn} - n}$$

Answer: A

Answer Key

Testname: UNTITLED1

- 1) A
- 2) D
- 3) A
- 4) C
- 5) B
- 6) B
- 7) B
- 8) A
- 9) D
- 10) D
- 11) B
- 12) A
- 13) C
- 14) B
- 15) D
- 16) D
- 17) B
- 18) D
- 19) C
- 20) D
- 21) C
- 22) D
- 23) B
- 24) B
- 25) C
- 26) A
- 27) A
- 28) A
- 29) B
- 30) C
- 31) D
- 32) B
- 33) A
- 34) B
- 35) C
- 36) B
- 37) A
- 38) B
- 39) C
- 40) A
- 41) C
- 42) D
- 43) C
- 44) A
- 45) C
- 46) D
- 47) D
- 48) D
- 49) B
- 50) C

Answer Key

Testname: UNTITLED1

- 51) C
- 52) B
- 53) B
- 54) B
- 55) B
- 56) D
- 57) B
- 58) C
- 59) B
- 60) A
- 61) D
- 62) C
- 63) B
- 64) A
- 65) A
- 66) B
- 67) A
- 68) D
- 69) C
- 70) A
- 71) C
- 72) D
- 73) A
- 74) D
- 75) A
- 76) D
- 77) B
- 78) D
- 79) C
- 80) D
- 81) C
- 82) B
- 83) D
- 84) C
- 85) C
- 86) A
- 87) C
- 88) C
- 89) D
- 90) D
- 91) B
- 92) B
- 93) A
- 94) B
- 95) C
- 96) B
- 97) D
- 98) A
- 99) C
- 100) C

Answer Key

Testname: UNTITLED1

- 101) D
- 102) C
- 103) B
- 104) D
- 105) B
- 106) C
- 107) D
- 108) C
- 109) D
- 110) D
- 111) D
- 112) D
- 113) A
- 114) A
- 115) C
- 116) B
- 117) A
- 118) D
- 119) B
- 120) A
- 121) B
- 122) B
- 123) A
- 124) B
- 125) A
- 126) C
- 127) B
- 128) C
- 129) A
- 130) A
- 131) B
- 132) D
- 133) D
- 134) A
- 135) B
- 136) D
- 137) B
- 138) D
- 139) D
- 140) D
- 141) C
- 142) D
- 143) D
- 144) C
- 145) D
- 146) D
- 147) C
- 148) A
- 149) A
- 150) B

Answer Key

Testname: UNTITLED1

- 151) D
- 152) B
- 153) B
- 154) B
- 155) C
- 156) B
- 157) C
- 158) A
- 159) B
- 160) B
- 161) B
- 162) D
- 163) C
- 164) C
- 165) D
- 166) B
- 167) A
- 168) C
- 169) D
- 170) C
- 171) D
- 172) D
- 173) A
- 174) B
- 175) A
- 176) C
- 177) A
- 178) B
- 179) A
- 180) C
- 181) B
- 182) D
- 183) B
- 184) C
- 185) C
- 186) B
- 187) D
- 188) A
- 189) D
- 190) C
- 191) A
- 192) D
- 193) D
- 194) D
- 195) D
- 196) A
- 197) D
- 198) C
- 199) A
- 200) B

Answer Key

Testname: UNTITLED1

- 201) A
- 202) C
- 203) A
- 204) C
- 205) A
- 206) B
- 207) A
- 208) A
- 209) D
- 210) D
- 211) D
- 212) B
- 213) A
- 214) D
- 215) C
- 216) A
- 217) B
- 218) A
- 219) C
- 220) B
- 221) A
- 222) C
- 223) A
- 224) B
- 225) C
- 226) C
- 227) B
- 228) D
- 229) D
- 230) D
- 231) A
- 232) A
- 233) B
- 234) A
- 235) D
- 236) B
- 237) C
- 238) D
- 239) D
- 240) A
- 241) D
- 242) C
- 243) A
- 244) B
- 245) A
- 246) B
- 247) C
- 248) C
- 249) D
- 250) B

Answer Key

Testname: UNTITLED1

- 251) D
- 252) D
- 253) B
- 254) D
- 255) D
- 256) B
- 257) B
- 258) D
- 259) C
- 260) C
- 261) C
- 262) B
- 263) B
- 264) C
- 265) B
- 266) C
- 267) B
- 268) A
- 269) B
- 270) D
- 271) C
- 272) C
- 273) D
- 274) D
- 275) D
- 276) B
- 277) A
- 278) B
- 279) D
- 280) A
- 281) D
- 282) A
- 283) A
- 284) C
- 285) B
- 286) B
- 287) C
- 288) D
- 289) D
- 290) C
- 291) C
- 292) A
- 293) B
- 294) B
- 295) A
- 296) A
- 297) A
- 298) C
- 299) A
- 300) A

Answer Key

Testname: UNTITLED1

- 301) D
- 302) A
- 303) D
- 304) A
- 305) C
- 306) C
- 307) A
- 308) B
- 309) C
- 310) A