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) $7k^8 - 3k^6 - 7k^4 + 7$ B) $7k^4 - 3k^3 - 7k^2 + 7$

C) $-3k^{18} + 7$ 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) $4y^8 - 2y^7 - 10y^6 + 11$ B) $4y^8 + 16y^7 - 6y^6 - 5$

C) $12y^8 + 16y^7 - 6y^6 - 5$ 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) $-5.66x^2 - 4x - 6.926$ B) $-3.92x^2 + 12x - 7.796$

C) $-3.92x^2 + 8.52x - 6.926$ D) $-5.66x^2 + 8.52x - 6.926$

Answer: D

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

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

Answer: A

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

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

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

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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

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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

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

A) $16x^2y^4(3x^7y^4 - 7y^2 - 5x^4)$ B) no common factor

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

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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

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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

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

A) $49p(m^2 + n^2)(m + n)(m - n)$ B) $p(7m^2 + n^2)(7m + n)(7m - n)$

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

Answer: A

74) $x^4 - 256$

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

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

Answer: D

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

A) $(x + 25)^2$ B) prime C) $(x + 25)(x - 25)$ D) $(x - 25)^2$

Answer: A

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

A) $(7x - 5)^2$ B) $(7x + 5)(7x - 5)$ C) Prime D) $(7x + 5)^2$

Answer: D

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

A) prime B) $(x - 4y)^2$ C) $(x - 4y)(x + 4y)$ D) $(x + 4y)^2$

Answer: B

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

A) $(x + 6)(x - 6)$ B) $(x - 6)^2$ C) $(x + 6)^2$ D) prime

Answer: D

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

A) $3(49x^2 + 56x + 16)$ B) $3(7x - 4)(7x + 4)$ C) $3(7x + 4)^2$ D) $(21x + 12)(7x + 4)$

Answer: C

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

A) $6(64x^2 - 16xy + 1y)$ B) $(48x - 6y)(8x - 1y)$ C) $6(8x + 1y)(8x - 1y)$ D) $6(8x - 1y)^2$

Answer: D

Factor completely.

81) $125p^3 - 1$

A) $(5p - 1)(25p^2 + 1)$ B) $(125p - 1)(p^2 + 5p + 1)$

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

Answer: C

82) $x^3 - 8$

A) $(x + 8)(x^2 - 1)$ B) $(x - 2)(x^2 + 2x + 4)$ C) $(x - 2)(x^2 + 4)$ D) $(x + 2)(x^2 - 2x + 4)$

Answer: B

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

A) $(9y - 10)(81y^2 + 100)$ B) $(729y - 10)(y^2 + 90y + 100)$

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

Answer: D

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

A) $(125a - 4b)(a^2 + 20ab + 16b^2)$ B) $(5a + 4b^2)(25a^2 - 20ab + 16b^2)$

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

Answer: C

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

A) $2m(4k + 3m^2)(16k^2 - 12km + 9km^2)$ B) $2m(64k - 3m)(k^2 + 12km + 9m^2)$

C) $2m(4k - 3m)(16k^2 + 12km + 9m^2)$ D) $(8km - 6m^2)(16k^2 + 9m^2)$

Answer: C

86) $216s^3 + 1$

A) $(6s + 1)(36s^2 - 6s + 1)$ B) $(216s + 1)(s^2 - 6s + 1)$

C) $(6s - 1)(36s^2 + 6s + 1)$ 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) $(7c - 9)(49c^2 + 63c + 81)$ B) $(7c + 9)(49c^2 + 81)$

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

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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

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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

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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

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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

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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

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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

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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

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

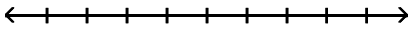
A) 6 B) No solution C) –3 D) 3

Answer: B

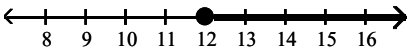
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Write the expression in interval notation. Graph the interval.

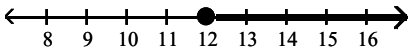
155) $x > 12$



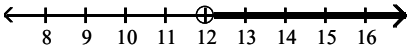
A) [12, ∞]



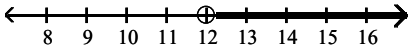
B) [12, ∞)



C) (12, ∞)

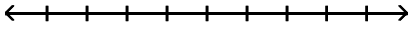


D) (12, ∞]

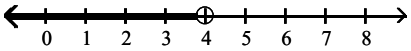


Answer: C

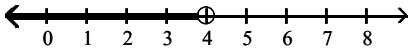
156) $x < 4$



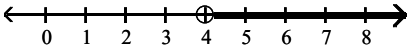
A) [−∞, 4)



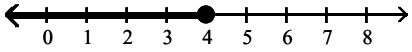
B) (−∞, 4)



C) (4, ∞)

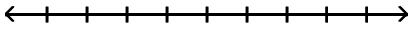


D) (−∞, 4]

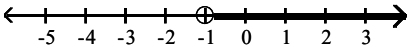


Answer: B

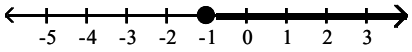
157) $x \geq -1$



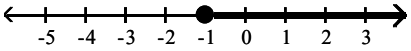
A) (−1, ∞]



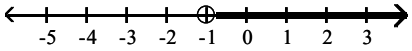
B) [−1, ∞]



C) [−1, ∞)

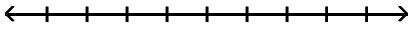


D) (−1, ∞)

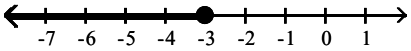


Answer: C

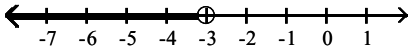
158) $x \leq -3$



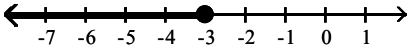
A) (−∞, −3]



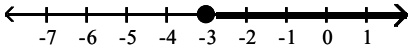
B) (−∞, −3)



C) [−∞, −3]



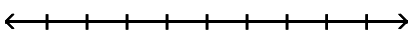
D) [−3, ∞)



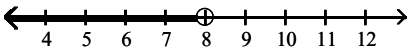
Answer: A

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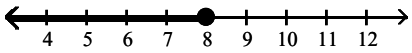
159) $8 \geq x$



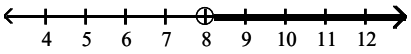
A) $[-\infty, 8)$



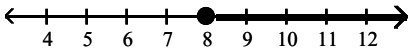
B) $(-\infty, 8]$



C) $(8, \infty)$

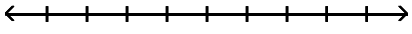


D) $[8, \infty)$

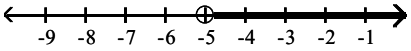


Answer: B

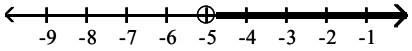
160) $-5 < x$



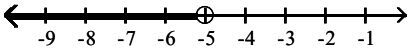
A) $(-5, \infty]$



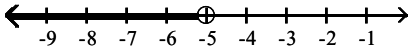
B) $(-5, \infty)$



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

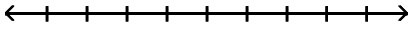


D) $(-\infty, -5)$

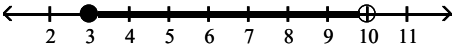


Answer: B

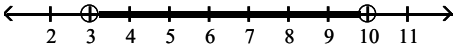
161) $3 < x < 10$



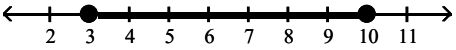
A) $[3, 10)$



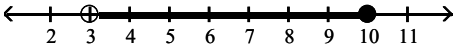
B) $(3, 10)$



C) $[3, 10]$

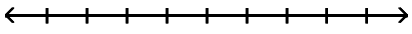


D) $(3, 10]$

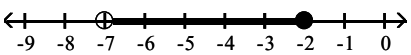


Answer: B

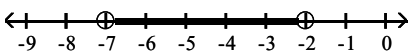
162) $-7 \leq x \leq -2$



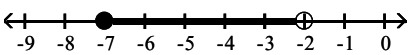
A) $(-7, -2]$



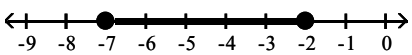
B) $(-7, -2)$



C) $[-7, -2)$



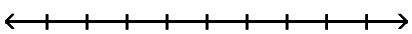
D) $[-7, -2]$



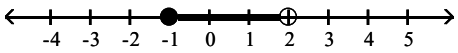
Answer: D

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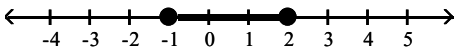
163) $-1 < x \leq 2$



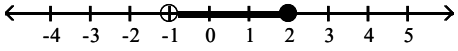
A) [–1, 2)



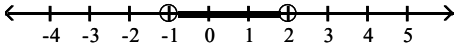
B) [–1, 2]



C) (–1, 2]



D) (–1, 2)



Answer: C

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, ∞)

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

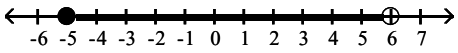
Answer: A

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)

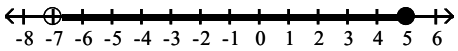


A) $-5 < x \leq 6$ B) $-5 \leq x \leq 6$ C) $-5 < x < 6$ D) $-5 \leq x < 6$

Answer: D

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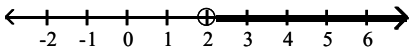
170)



A) $-7 < x < 5$ B) $-7 \le x < 5$ C) $-7 < x \le 5$ D) $-7 \le x \le 5$

Answer: C

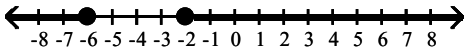
171)



A) $x \ge 2$ B) $x < 2$ C) $x \le 2$ D) $x > 2$

Answer: D

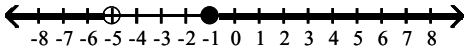
172)



A) $-6 < x < -2$ B) $-6 \le x \le -2$ C) $x < -6$ or $x > -2$ D) $x \le -6$ or $x \ge -2$

Answer: D

173)

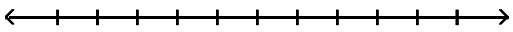


A) $x < -5$ or $x \ge -1$ B) $-5 < x \le -1$ C) $-5 \le x \le -1$ D) $x < -5$ or $x > -1$

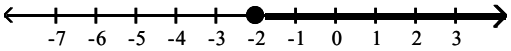
Answer: A

Solve the inequality and graph the solution.

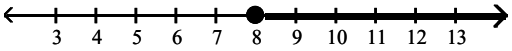
174) $5x - 25 \ge 15$



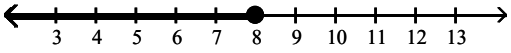
A) $[-2, \infty)$



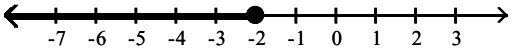
B) $[8, \infty)$



C) $(-\infty, 8]$



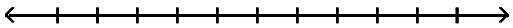
D) $(-\infty, -2]$



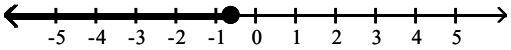
Answer: B

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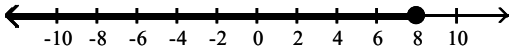
175) $10x - 7 \leq 2x - 12$



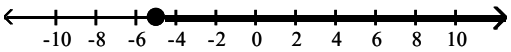
A) $\left(-\infty, -\frac{5}{8}\right]$



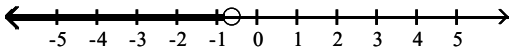
B) $(-\infty, 8]$



C) $[-5, \infty)$

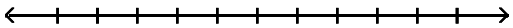


D) $\left(-\infty, -\frac{5}{8}\right)$

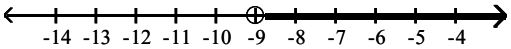


Answer: A

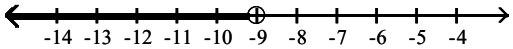
176) $5 - 9t + 11 \geq -10t + 19$



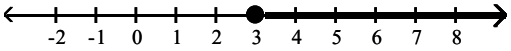
A) $(-9, \infty)$



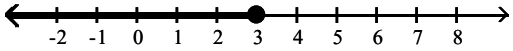
B) $(-\infty, -9)$



C) $[\ 3, \infty)$

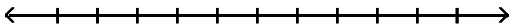


D) $(-\infty, 3]$

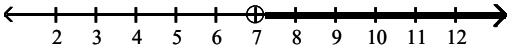


Answer: C

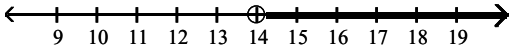
177) $14y + 8 > 2(6y + 11)$



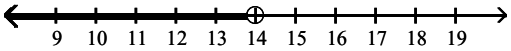
A) $(7, \infty)$



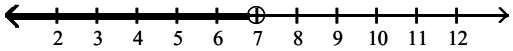
B) $(14, \infty)$



C) $(-\infty, 14)$

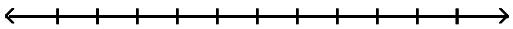


D) $(-\infty, 7)$

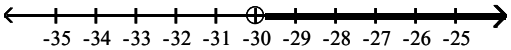


Answer: A

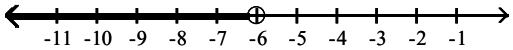
178) $-6(4y - 3) < -30y - 18$



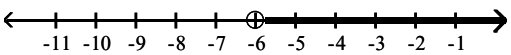
A) $(-30, \infty)$



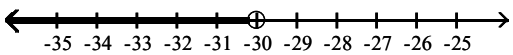
B) $(-\infty, -6)$



C) $(-6, \infty)$



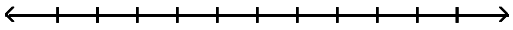
D) $(-\infty, -30)$



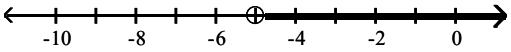
Answer: B

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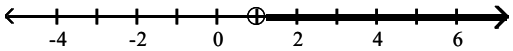
179) $m - 5(m + 6) < 2m$



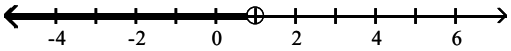
A) $(-5, \infty)$



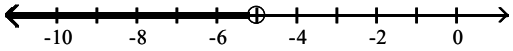
B) $(1, \infty)$



C) $(-\infty, 1)$

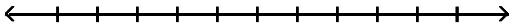


D) $(-\infty, -5)$

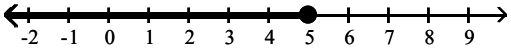


Answer: A

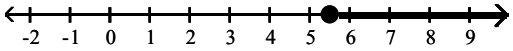
180) $50 - (2x + 5) \leq 5(x - 3) + 5x$



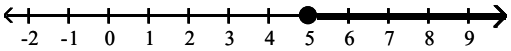
A) $(-\infty, 5]$



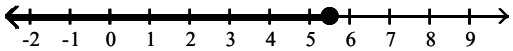
B) $\left[\frac{35}{6}, \infty\right)$



C) $[5, \infty)$

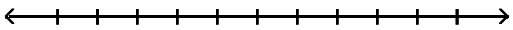


D) $\left(-\infty, \frac{35}{6}\right]$

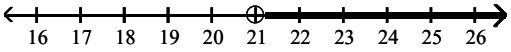


Answer: C

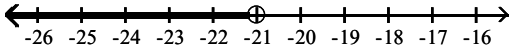
181) $3(x + 9) + 25x < 6(5x + 1) - 3x$



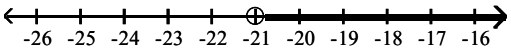
A) $(21, \infty)$



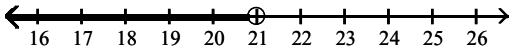
B) $(-\infty, -21)$



C) $(-21, \infty)$



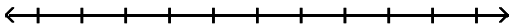
D) $(-\infty, 21)$



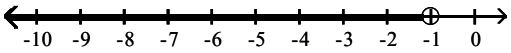
Answer: B

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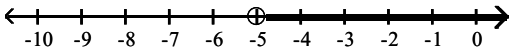
182) $\frac{1}{2}(x - 2) > \frac{1}{6}(5x + 4)$



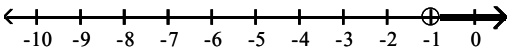
A) $(-\infty, -1)$



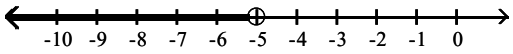
B) $(-5, \infty)$



C) $(-1, \infty)$

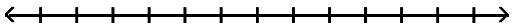


D) $(-\infty, -5)$

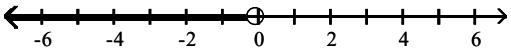


Answer: D

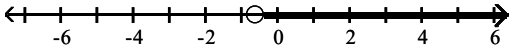
183) $\frac{5}{4}(-1 + 3k) > \frac{3}{5}(3k - 4)$



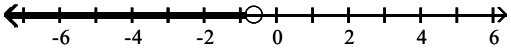
A) $\left(-\infty, -\frac{1}{13}\right)$



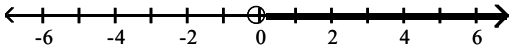
B) $\left(-\frac{23}{39}, \infty\right)$



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



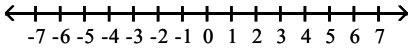
D) $\left(-\frac{1}{13}, \infty\right)$



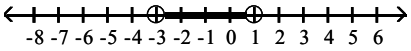
Answer: B

Solve the inequality, then graph the solution.

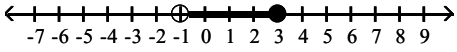
184) $-2 < -2x \leq 6$



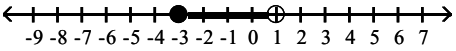
A) $(-3, 1)$



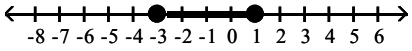
B) $(-1, 3]$



C) $[-3, 1)$



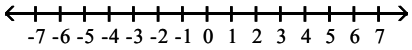
D) $[-3, 1]$



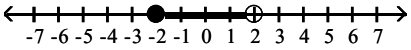
Answer: C

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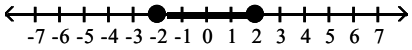
185) $-1 < 3y + 5 \le 11$



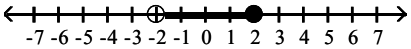
A) $[-2, 2)$



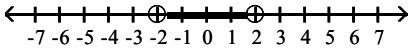
B) $[-2, 2]$



C) $(-2, 2]$

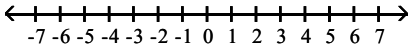


D) $(-2, 2)$

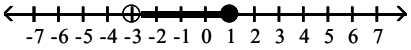


Answer: C

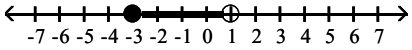
186) $0 < -5a + 5 \le 20$



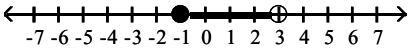
A) $(-3, 1]$



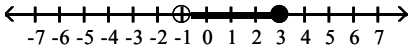
B) $[-3, 1)$



C) $[-1, 3)$

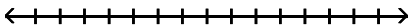


D) $(-1, 3]$

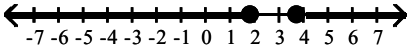


Answer: B

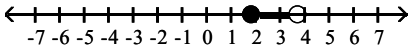
187) $3 < \dfrac{15x - 7}{7} < 7$



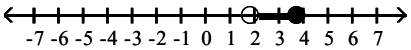
A) $\left(-\infty, \dfrac{28}{15}\right) \cup \left(\dfrac{56}{15}, \infty\right)$



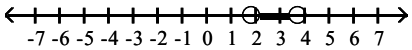
B) $\left(-\dfrac{28}{15}, \dfrac{56}{15}\right)$



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



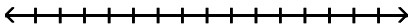
D) $\left(\dfrac{28}{15}, \dfrac{56}{15}\right)$



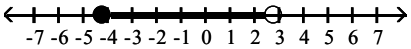
Answer: D

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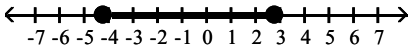
188) $-2 < \frac{4 - 5x}{5} \leq 5$



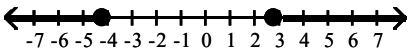
A) $\left[-\frac{21}{5}, \frac{14}{5}\right)$



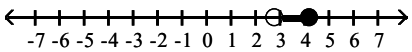
B) $\left[-\frac{21}{5}, \frac{14}{5}\right]$



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



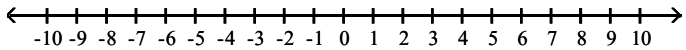
D) $\left[\frac{21}{5}, \frac{14}{5}\right)$



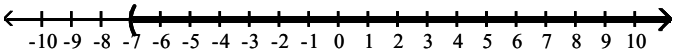
Answer: A

Solve the quadratic inequality. Graph the solution.

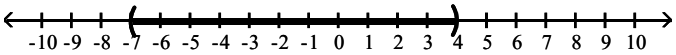
189) $(x - 4)(x + 7) > 0$



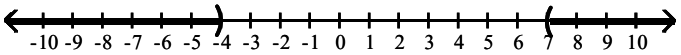
A) $(-7, \infty)$



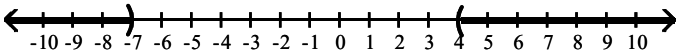
B) $(-7, 4)$



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



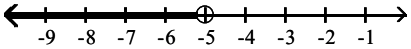
D) $(-\infty, -7) \cup (4, \infty)$



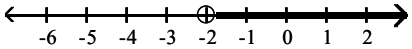
Answer: D

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

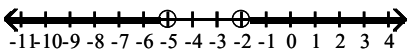
A) $(-\infty, -5)$



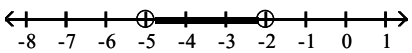
B) $(-2, \infty)$



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



D) $(-5, -2)$

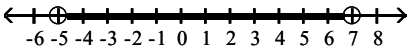


Answer: C

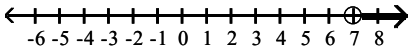
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191) $s^2 - 2s - 35 < 0$

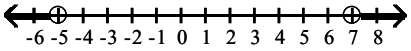
A) $(-5, 7)$



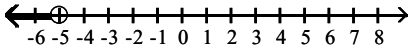
B) $(7, \infty)$



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



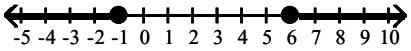
D) $(-\infty, -5)$



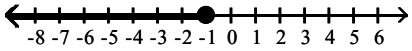
Answer: A

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

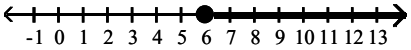
A) $(-\infty, -1] \cup [6, \infty)$



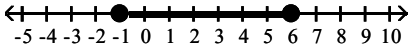
B) $(-\infty, -1]$



C) $[6, \infty)$



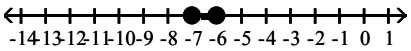
D) $[-1, 6]$



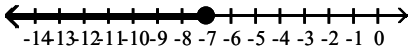
Answer: D

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

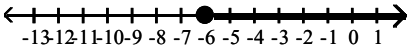
A) $[-7, -6]$



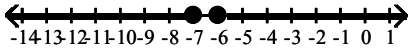
B) $(-\infty, -7]$



C) $[-6, \infty)$



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

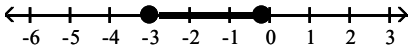


Answer: D

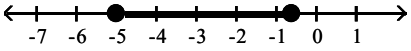
194) $5x^2 + 4x + 3 \ge 0$

A) no solution

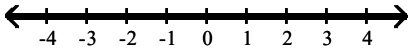
B) $\left[-3, -\frac{1}{5}\right]$



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



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

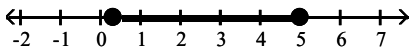


Answer: D

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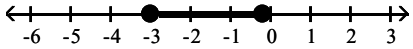
195) $-3x^2 + 3x - 5 \le 0$

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

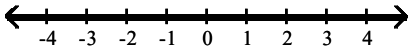


B) no solution

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



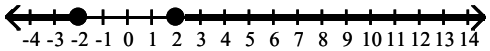
D) $(-\infty, \infty)$



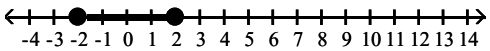
Answer: D

196) $x^2 \ge 4$

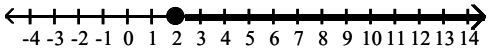
A) $(-\infty, -2] \cup [2, \infty)$



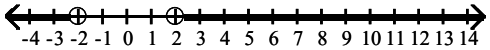
B) $[-2, 2]$



C) $[2, \infty)$



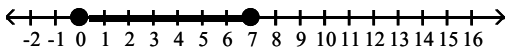
D) $(-\infty, -2) \cup (2, \infty)$



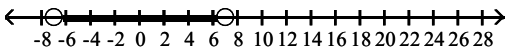
Answer: A

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

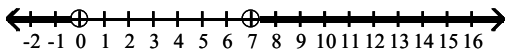
A) $[0, 7]$



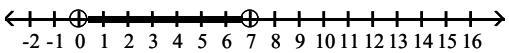
B) $(-7, 7)$



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



D) $(0, 7)$



Answer: D

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

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

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

A) $8^{13}m$ B) $\frac{m}{8^{13}}$ C) 8^7m D) $\frac{m}{8^7}$

Answer: C

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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

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

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

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

A) 1 B) xy C) $\dfrac{1}{10xy}$ D) $\dfrac{1}{xy}$

Answer: D

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

A) $\dfrac{ab}{4b + 7a}$ B) $\dfrac{7a + 4b}{ab}$ C) $\dfrac{ab}{7b + 4a}$ D) $\dfrac{28ab}{7a + 4b}$

Answer: A

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

A) $\dfrac{m^2n^2}{(4n + 5m)^2(4n - 5m)}$ B) $\dfrac{9}{16m^{-1} - 25n^{-1}}$

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

Answer: A

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

A) $\dfrac{216y + 3x^3}{648}$ B) $\dfrac{216y + 3x^3}{x^3y}$ C) $\dfrac{216y + 3x}{xy}$ D) $\dfrac{648 + x^3y}{216y}$

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

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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

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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) $\frac{3\,k^{-9}(6\,k^{-2})^{-1}}{6k^{3/2}}$

A) $-\frac{1}{12k^{18}}$ B) $\frac{3}{k^{21/2}}$ C) $\frac{1}{12\,k^{17/2}}$ D) $-6k^{19}$

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

A) $-6b^{7/4}$ B) $\frac{-6}{b^{5/4}}$ C) $\frac{b^{5/4}}{6}$ D) $-6b^{5/4}$

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

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253) $\dfrac{k^{-1/5} \cdot m^{-1/9} \cdot n^{8/7}}{k^{3/5} \cdot m^{-5/9} \cdot n^{-2/7}}$

A) $\dfrac{m^{4/9} \cdot n^{6/7}}{k^{4/5}}$ B) $\dfrac{m^{4/9} \cdot n^{10/7}}{k^{4/5}}$ C) $\dfrac{m^{4/9} \cdot n^{10/7}}{k^{2/5}}$ D) $\dfrac{n^{10/7}}{k^{2/5} \cdot m^{4/9}}$

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) $(x + y)^2[3x + 3y - 6 + 9(x + y)^2]$ B) $3(x + y)^2[x + y - 2 + 3(x + y)^2]$

C) $3(x + y)^3(-2 + 3x + 3y)$ 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) $(a - 4b)(a + 3b)(a + b)$ B) $(a + b)^2(a - 4)(a + 3)$

C) $(a + b)^2(a - 4b)(a + 3b)$ 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) $2x(x^2 + 3)(-3x^3 + 6x + 1)$ B) $2x(x^2 + 3)^2(-3x^3 + 6x - 1)$

C) $2x(x^2 + 3)(-3x^3 + 6x - 1)$ 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

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262) $x(2x + 5)^2(x^2 - 6)^{-1/2} + 3(x^2 - 6)^{1/2}(2x + 5)$

A) $(2x + 5)(x^2 - 6)^{-1/2}(3x^2 + 2x - 13)$

B) $(2x + 5)(x^2 - 6)^{-1/2}(5x^2 + 5x - 18)$

C) $(2x + 5)^2(x^2 - 6)^{-1/2}(3x^2 + x - 18)$

D) $(2x + 5)(x^2 - 6)^{1/2}(5x^2 + 5x - 18)$

Answer: B

263) $(x - 4)^{-3/2} - (x - 4)^{-1/2} + (x - 4)^{1/2}$

A) $(x - 4)^{-3/2}(x^2 - 9x - 17)$

B) $(x - 4)^{-3/2}(x^2 - 9x + 21)$

C) $(x - 4)^{-3/2}(x^2 + 9x - 21)$

D) $(x - 4)^{3/2}(x^2 + 8x - 21)$

Answer: B

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

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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) $4(\sqrt{a^2b^2})$ 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

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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

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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) $4x + 2$ B) $|4x + 2|$

C) $(4x + 2)^2$ D) cannot be simplified

Answer: B

294) $\sqrt{4m^2 + 9n^2}$

A) $|2m + 3n|$ B) cannot be simplified

C) $(2m + 3n)^2$ 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

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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

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Rationalize the numerator. Assume that all radicands represent positive real numbers.

306) $\dfrac{\sqrt{13}+2}{2}$

A) $\dfrac{10}{2\sqrt{13}-1}$ B) $\dfrac{-13}{\sqrt{13}}$ C) $\dfrac{9}{2\sqrt{13}-4}$ D) $\dfrac{13}{\sqrt{13}-1}$

Answer: C

307) $\dfrac{2-\sqrt{7}}{8-\sqrt{6}}$

A) $\dfrac{-3}{16+8\sqrt{7}-2\sqrt{6}-\sqrt{42}}$ B) $\dfrac{-3}{16-8\sqrt{7}-2\sqrt{6}-\sqrt{42}}$

C) $\dfrac{-3}{16+8\sqrt{7}-2\sqrt{6}-42}$ D) $\dfrac{-3}{16+6\sqrt{1}-42}$

Answer: A

308) $\dfrac{3+\sqrt{2}}{9+\sqrt{5}}$

A) $\dfrac{7}{27+9\sqrt{2}-3\sqrt{5}-\sqrt{10}}$ B) $\dfrac{7}{27-9\sqrt{2}+3\sqrt{5}-\sqrt{10}}$

C) $\dfrac{7}{27-9\sqrt{2}-3\sqrt{5}-10}$ D) $\dfrac{7}{27-12\sqrt{7}-10}$

Answer: B

309) $\dfrac{\sqrt{x}+\sqrt{y}}{8x}$

A) $\dfrac{x+y}{-8x\sqrt{x}+8x\sqrt{y}}$ B) $-\dfrac{y}{8\sqrt{x}-8\sqrt{y}}$ C) $\dfrac{x-y}{8x\sqrt{x}-8x\sqrt{y}}$ D) $\dfrac{8x-8y}{x\sqrt{x}-x\sqrt{y}}$

Answer: C

310) $\dfrac{\sqrt{m}-\sqrt{n}}{2+\sqrt{n}}$

A) $\dfrac{m-n}{2\sqrt{m}+2\sqrt{n}+\sqrt{mn}+n}$ B) $\dfrac{m-n}{2\sqrt{m}+n}$

C) $\dfrac{m-1}{2\sqrt{m}+2\sqrt{n}+\sqrt{mn}}$ D) $\dfrac{m+n}{2\sqrt{m}-2\sqrt{n}-\sqrt{mn}-n}$

Answer: A

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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

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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
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95) C
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97) D
98) A
99) C
100) C

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101) D
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103) B
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118) D
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128) C
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132) D
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139) D
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141) C
142) D
143) D
144) C
145) D
146) D
147) C
148) A
149) A
150) B

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151) D
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153) B
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195) D
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197) D
198) C
199) A
200) B

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201) A
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236) B
237) C
238) D
239) D
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241) D
242) C
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244) B
245) A
246) B
247) C
248) C
249) D
250) B

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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
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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

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301) D
302) A
303) D
304) A
305) C
306) C
307) A
308) B
309) C
310) A

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