Finite Mathematics 12th edition Lial Test Bank

SKU: 9780135882627-TEST-BANK

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

Perform the indicated operation.

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

A) $-3x^2 + 7x + 3$ B) $3x^2 - 7x + 3$ C) $9x^2 - 7x - 17$ D) $9x^2 - 7x + 17$

Answer: B

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

A) $5n^6 + 2n^4 - 29$ B) $18n^{10}$ C) $5n^6 - 3n^4 - 29$ D) $5n^6 + 2n^4 + 11$

Answer: D

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

A) $16m^7 + 14m^5 + 4m$ B) $34m^{13}$ C) $13m + 5m^7 + 16m^5$ D) $13m^7 + 5m^5 + 16m$

Answer: D

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

A) $6q^2 - 14q - 11$ B) $5q^2 - 2q^3 + 3$ C) $5q^2 - 11$ D) $6q^2 - 3$

Answer: D

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

A) $2p^2 + 5p - 10$ B) $3p^2 + 9p - 2$ C) $3p^2 - 9p - 10$ D) $2p^2 - 2p^3 + 5p - 2$

Answer: B

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

A) $7r^4 + 9r^3 + 14r^2 + 4$ B) $13r^7 + 14r^3$ C) $6r^4 + 8r^3 + 4r^2 + 4$ D) $6r^4 - 8r^3 + 14r^2 - 4$

Answer: C

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

A) $-2k^5 - 2k^4 + 9k^3 + 5$ B) $21k^{24} + 4$

C) $15k^5 - 7k^4 + 13k^3 + 4$ D) $15k^{10} - 7k^8 + 13k^6 + 4$

Answer: C

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

A) $12y^4 - 6y^3 - 3y^2 + 9$ B) $6y^4 + 2y^3 + 9y^2 + 1$

C) $6y^4 - 6y^3 - 3y^2 + 9$ D) $12y^4 - 6y^3 - 3y^2 + 1$

Answer: B

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

A) $6q^2 + 4q - 10$ B) $6q^2 - 4q - 10$ C) $6q^2 + 12q + 10$ D) $3q^2 + 12q + 10$

Answer: B

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

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

C) $-1.01x^2 + 8x - 6.777$ D) $-1.01x^2 + 7.34x - 6.557$

Answer: B

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11) $2p(6p^2 + 7p - 1)$

A) $12p^3 + 7p^2 - 2p$ B) $12p^3 + 14p^2 - 2p$ C) $12p^3 + 12p^2$ D) $12p^3 + 14p^2 - 1p$

Answer: B

12) $-11m(4m^2 + 7m - 9)$

A) $-44m^2 - 77m + 99$ B) $44m^3 + 77m^2 - 99m$

C) $-44m^3 - 77m + 99$ D) $-44m^3 - 77m^2 + 99m$

Answer: D

13) $-11y^2(-11y^2 + 4y + 12)$

A) $121y^3 - 44y^2 - 132y$ B) $121y^4 - 44y^3 - 132y^2$

C) $-121y^4 + 44y^3 + 132y^2$ D) $121y^4 - 44y^2 - 132y$

Answer: B

14) $(2x + 7)(x - 1)$

A) $x^2 - 7x + 5$ B) $x^2 + 5x + 4$ C) $2x^2 + 5x - 7$ D) $2x^2 + 4x - 7$

Answer: C

15) $(4k + 1)(k - 4)$

A) $4k^2 - 15k - 15$ B) $4k^2 - 15k - 4$ C) $4k^2 - 4k - 15$ D) $4k^2 - 17k - 4$

Answer: B

16) $(m - 10)(2m + 3)$

A) $2m^2 - 17m - 30$ B) $2m^2 - 30m - 17$ C) $2m^2 - 19m - 30$ D) $2m^2 - 17m - 17$

Answer: A

17) $(-2p + 12)(5p - 1)$

A) $3p^2 + 62p - 12$ B) $3p^2 + 62p + 62$ C) $-10p^2 + 62p + 62$ D) $-10p^2 + 62p - 12$

Answer: D

18) $(x + 10y)(x + 9y)$

A) $x + 19xy + 90y$ B) $x^2 + 16xy + 90y^2$ C) $x^2 + 19xy + 90y^2$ D) $x^2 + 19xy + 19y^2$

Answer: C

19) $(a + 6b)(-2a - 8b)$

A) $a^2 - 20ab - 48b^2$ B) $-2a^2 - 20ab - 48b^2$ C) $a^2 - 20ab - 20b^2$ D) $-2a^2 - 20ab - 20b^2$

Answer: B

20) $(4x + 10)(4x - 10)$

A) $16x^2 - 100$ B) $4x^2 - 80x - 100$ C) $16x^2 + 80x - 100$ D) $16x^2 - 80x - 100$

Answer: A

21) $(4r - 9)(4r - 9)$

A) $16r^2 - 72r + 81$ B) $4r^2 - 73r + 81$ C) $4r^2 - 72r - 73$ D) $16r^2 + 81r - 72$

Answer: A

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

A) $q^2+\frac{25}{6}q+1$ B) $q^2+\frac{25}{12}q+1$ C) $2q^2+\frac{25}{12}q+1$ D) q^2+1

Answer: B

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

A) $\frac{5}{9}m^2-2m+1$ B) $\frac{5}{3}m^2-2m+2$ C) $\frac{5}{3}m^2-2m+1$ D) $\frac{5}{6}m^2-2m+1$

Answer: A

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

A) x^3+28 B) x^3+3x^2+28 C) $x^3+5x^2+11x+28$ D) $x^3+3x^2+3x+28$

Answer: D

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

A) $7m^3+20m^2+4m-21$ B) $7m^3-20m^2+10m-21$

C) $7m^3-20m^2+4m-21$ D) $7m^3-22m^2+4m-21$

Answer: C

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

A) $12r^4-8r^3-28r^2+12r+20$ B) $12r^4-8r^3-16r^2+12r+20$

C) $12r^4-40r^3-28r^2+12r+20$ D) $12r^4-8r^3-28r^2+20r+20$

Answer: A

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

A) $8x^2-16xy+4x+72y^2-8y$ B) $8x^2-52xy-52y^2$

C) $8x^2-52xy+4x+72y^2-8y$ D) $8x^2-36xy+4x+72y^2$

Answer: C

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

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

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

Answer: D

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

A) $2x^4+13x^3+11x^2+8x-16$ B) $2x^4+10x^3+11x^2+8x-16$

C) $2x^4+10x^3+7x^2+8x-16$ D) $2x^4+13x^3+7x^2+8x-16$

Answer: A

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

A) x^3-50 B) $x^3+12x^2+45x+50$ C) $x^3+25x^2+2x+50$ D) $x^3+2x^2-25x-50$

Answer: D

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31) $(n + 16)^2$

A) $n^2 + 32n + 256$ B) $n + 256$ C) $256n^2 + 32n + 256$ D) $n^2 + 256$

Answer: A

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

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

Answer: D

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

A) $8a^3 - 4a^2b + 2ab^2 - b^3$ B) $8a^3 - 12a^2b + 6ab^2 - b^3$

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

Answer: B

Factor out the greatest common factor.

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

A) $8(a^2 + 4a)$ B) $a^4(2a^2 + 8)$ C) $2(a^6 + 4a^4)$ D) $2a^4(a^2 + 4)$

Answer: D

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

A) $2(2x^3 - 4x^2 + 3x)$ B) $4x(x^2 - 2x + 3)$ C) $2x(2x^2 - 4x + 3)$ D) $2x(2x^2 - 8x^2 + 6x)$

Answer: C

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

A) $m^2(6m^4 - 27m^2 + 15)$ B) $3(2m^6 - 9m^4 + 5m^2)$

C) no common factor D) $3m^2(2m^4 - 9m^2 + 5)$

Answer: D

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

A) $8(9m^7 + 6m^4 - 5m^2)$ B) $m^2(72m^5 + 48m^2 - 40)$

C) $8m^2(9m^5 + 6m^2 - 5)$ D) no common factor

Answer: C

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

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

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

Answer: B

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

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

C) no common factor D) $4x^2y^4(2x^7y^5 + 9x^4y^3 + 5)$

Answer: D

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

A) $8(3x^9y^8 - 8x^3y^6 + 6x^6y^2)$ B) no common factor

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

Answer: C

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

A) $3(8m^2 - 4r^3)$ B) $m^2(25 - 14m)$ C) no common factor D) $2(12m^2 + 7r^3)$

Answer: C

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

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

A) $(x + 9)(x - 5)$ B) $(x - 9)(x + 1)$ C) prime D) $(x - 9)(x + 5)$

Answer: A

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

A) $(x - 3)(x + 1)$ B) prime C) $(x + 3)(x - 10)$ D) $(x - 3)(x + 10)$

Answer: C

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

A) $(x + 8)(x + 6)$ B) $(x - 2)(x - 4)$ C) $(x + 2)(x + 4)$ D) $(x + 8)(x - 1)$

Answer: C

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

A) $(x + 4)(x - 3)$ B) $(x - 4)(x + 3)$ C) $(x + 4)(x + 3)$ D) $(x - 4)(x - 3)$

Answer: D

46) $x^2 - x - 45$

A) $(x - 5)(x + 9)$ B) $(x + 5)(x - 9)$ C) $(x - 45)(x + 1)$ D) prime

Answer: D

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

A) $(x - 7)(x - 5)$ B) $(6x + 7)(x - 5)$ C) $(7x + 6)(x - 5)$ D) $(x + 6)(x - 5)$

Answer: B

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

A) $(7x + 56)(7x - 8)$ B) $(7x - 8)(x - 8)$ C) $(7x - 8)(x + 8)$ D) $(8 - 7x)(7x - 8)$

Answer: B

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

A) $(2z + 3)(4z - 3)$ B) $(2z - 3)(4z + 3)$ C) prime D) $(8z + 3)(z - 3)$

Answer: A

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

A) $(u - 2v)(u + 4v)$ B) $(u + 2v)(u - 4v)$ C) $(u - 2v)(u + v)$ D) prime

Answer: B

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51) $x^2 - 12xy + 27y^2$

A) $(x + 9y)(x - 3y)$ B) prime C) $(x - 9y)(x - 3y)$ D) $(x - 27y)(x - y)$

Answer: C

52) $6x^2 - 7xt - 3t^2$

A) prime B) $(3x + t)(2x - 3t)$ C) $(6x + t)(x - 3t)$ D) $(3x - t)(2x + 3t)$

Answer: B

53) $6m^2 - 19mn + 10n^2$

A) $(2mn + 5)(3mn + 2)$ B) $(2m - 5n)(3m + 2n)$ C) $(2mn - 5)(3mn - 2)$ D) $(2m - 5n)(3m - 2n)$

Answer: D

54) $8x^2 - 8x - 48$

A) $8(x + 2)(x - 3)$ B) $8(x - 2)(x + 3)$ C) prime D) $(8x + 16)(x - 3)$

Answer: A

55) $21x^2 - 91x - 70$

A) $(21x + 14)(x - 5)$ B) prime C) $7(3x + 2)(x - 5)$ D) $7(3x - 2)(x + 5)$

Answer: C

56) $4y^2 + 18y - 10$

A) $(4y - 2)(y + 5)$ B) $2(2y + 1)(y - 5)$ C) $2(2y - 1)(y + 5)$ D) prime

Answer: C

57) $5x^2 - 15xy - 20y^2$

A) prime B) $5(x - y)(x + 4y)$ C) $(5x - 5y)(x + 4y)$ D) $5(x + y)(x - 4y)$

Answer: D

58) $4y^3 - 4y^2 - 80y$

A) $(y - 4)(4y^2 + 20)$ B) $4y(y - 4)(y + 5)$ C) $4y(y + 4)(y - 5)$ D) $(4y^2 + 16y)(y - 5)$

Answer: C

59) $15x^3 - 65x^2 - 50x$

A) $x(3x + 2)(5x - 25)$ B) $5x(3x + 2)(x - 5)$ C) $5(3x - 2)(x + 5)$ D) $(x^2 - 5)(15x + 10)$

Answer: B

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

A) $6(3x - y)(4x - y)$ B) $(18x + 6y)(4x + y)$ C) prime D) $6(3x + y)(4x + y)$

Answer: D

61) $x^3 + 6x^2 - 7x$

A) $x(x - 7)(x - 1)$ B) $x(x + 7)(x - 1)$ C) $x(x + 7)(x + 1)$ D) $x(x^2 + 6x - 7)$

Answer: B

62) $a^3b - 9a^2b^2 + 14ab^3$

A) $a(ab - 2)(ab - 7)$ B) $ab(a - 2b)(a + 7b)$ C) $ab(a - 2b)(a - 7b)$ D) $ab(a - 14b)(a - b)$

Answer: C

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

A) $5x(x + 5y)(x - 9y)$ B) $5xy(x - 5y)(x + 9y)$ C) $5(x - 5y)(x + 9y)$ D) $5x(x - 5y)(x + 9y)$

Answer: D

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

A) $2x^2(2x + 1)(3x + 25)$ B) $2x^2y^2(2x + 5)(3x + 5)$

C) $2x^2(2x + 5y)(3x + 5y)$ D) $2xy(2x + 1)(3x + 25)$

Answer: C

65) $25x^2 - 81$

A) $(5x - 9)^2$ B) $(5x + 9)^2$ C) prime D) $(5x + 9)(5x - 9)$

Answer: D

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

A) prime B) $(5k - 7m)^2$ C) $(5k + 7m)^2$ D) $(5k + 7m)(5k - 7m)$

Answer: D

67) $25y^4 - 81$

A) $(5y^2 + 9)^2$ B) $(5y^2 - 9)^2$ C) prime D) $(5y^2 + 9)(5y^2 - 9)$

Answer: D

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

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

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

Answer: D

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

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

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

Answer: A

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

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

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

Answer: A

71) $25x^2 + 16$

A) $(5x - 4)^2$ B) $(5x + 4)(5x - 4)$ C) prime D) $(5x + 4)^2$

Answer: C

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

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

C) $-11x^4$ D) $(5x - 6y)(5x + 6y)(5x^2 + 6y^2)$

Answer: B

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

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

C) $25(m^2p + n^2)(mp + n)(mp - n)$ D) $p(5m^2 + n^2)(5m + n)(5m - n)$

Answer: A

74) $x^4 - 1$

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

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

Answer: D

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

A) $(x + 12)(x - 12)$ B) $(x + 12)^2$ C) $(x - 12)^2$ D) prime

Answer: B

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

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

Answer: A

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

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

Answer: B

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

A) $(x - 20)^2$ B) prime C) $(x + 20)^2$ D) $(x + 20)(x - 20)$

Answer: B

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

A) $7(7x + 3)^2$ B) $7(7x - 3)(7x + 3)$ C) $7(49x^2 + 42x + 9)$ D) $(49x + 21)(7x + 3)$

Answer: A

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

A) $(49x - 35y)(7x - 5y)$ B) $7(7x - 5y)^2$

C) $7(7x + 5y)(7x - 5y)$ D) $7(49x^2 - 70xy + 25y)$

Answer: B

Factor completely.

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

A) $(10p - 1)(100p^2 + 10p + 1)$ B) $(1{,}000p - 1)(p^2 + 10p + 1)$

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

Answer: A

82) $x^3 - 343$

A) $(x + 343)(x^2 - 1)$ B) $(x - 7)(x^2 + 49)$ C) $(x - 7)(x^2 + 7x + 49)$ D) $(x + 7)(x^2 - 7x + 49)$

Answer: C

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83) $216y^3 - 343$

A) $(216y - 7)(y^2 + 42y + 49)$
B) $(6y - 7)(36y^2 + 42y + 49)$
C) $(6y + 7)(36y^2 - 42y + 49)$
D) $(6y - 7)(36y^2 + 49)$

Answer: B

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

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

Answer: C

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

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

Answer: A

86) $729s^3 + 1$

A) $(9s + 1)(81s^2 - 9s + 1)$
B) $(729s + 1)(s^2 - 9s + 1)$
C) $(9s - 1)(81s^2 + 9s + 1)$
D) $(9s + 1)(81s^2 + 1)$

Answer: A

87) $t^3 + 125$

A) $(t - 5)(t^2 + 5t + 25)$
B) $(t + 5)(t^2 - 5t + 25)$
C) $(t + 5)(t^2 + 25)$
D) $(t - 125)(t^2 - 1)$

Answer: B

88) $8c^3 + 27$

A) $(2c + 3)(4c^2 + 9)$
B) $(8c + 3)(c^2 - 6c + 9)$
C) $(2c - 3)(4c^2 + 6c + 9)$
D) $(2c + 3)(4c^2 - 6c + 9)$

Answer: D

Write the expression in lowest terms.

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

A) $\frac{4}{5}$
B) $-\frac{8k}{10}$
C) $\frac{5}{4k}$
D) $\frac{4k}{5}$

Answer: D

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

A) $4k^2$
B) 18
C) $4k$
D) $18k^2$

Answer: A

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

A) $\frac{9 - 2x}{-9 + 2x}$
B) 1
C) -1
D) $\frac{2x - 9}{-9x + 2}$

Answer: B

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

A) $\frac{2y-2}{2y+4}$ B) $\frac{y-9}{y-6}$ C) $\frac{y+2}{y+4}$ D) $\frac{y+9}{y+6}$

Answer: D

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

A) $\frac{1}{a+4}$ B) $\frac{a}{a+4}$ C) $\frac{a^2}{a+4}$ D) $\frac{a-3}{a+4}$

Answer: B

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

A) $\frac{2x+2}{10x^2+14x+4}$ B) $\frac{2x+5}{5x+14}$ C) $\frac{2x}{5x+2}$ D) $\frac{1}{5x+2}$

Answer: D

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

A) $-\frac{y^2-5y-14}{y^2-3y-28}$ B) $\frac{-5y-14}{-3y-28}$ C) $\frac{-5y-1}{-3y-2}$ D) $\frac{y+2}{y+4}$

Answer: D

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

A) $-\frac{y^2+2y-15}{y^2-3y-40}$ B) $\frac{2y-15}{-3y-40}$ C) $\frac{2y-3}{-3y-8}$ D) $\frac{y-3}{y-8}$

Answer: D

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

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

Answer: C

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

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

Answer: D

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Perform the indicated operation and simplify.

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

A) $\frac{56x^2}{4x^3}$ B) $\frac{14x^2}{x^3}$ C) $\frac{x}{14}$ D) $\frac{14}{x}$

Answer: D

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

A) $\frac{3}{14p}$ B) $\frac{42p^3 - 42p^2}{9p^2 - 9p}$ C) $\frac{14p}{3}$ D) $\frac{63p^2 + 126p + 63}{6p^3}$

Answer: C

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

A) $\frac{64x^2}{4x^3}$ B) $\frac{16x^2}{x^3}$ C) $\frac{x}{16}$ D) $\frac{16}{x}$

Answer: D

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

A) $\frac{2}{5p}$ B) $\frac{25p^3 - 25p^2}{10p^2 - 10p}$ C) $\frac{50p^2 + 100p + 50}{5p^3}$ D) $\frac{5p}{2}$

Answer: D

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

A) $\frac{k}{k^2 + 14k + 48}$ B) $\frac{1}{k + 7}$ C) $\frac{k}{k + 7}$ D) $\frac{k^2 + 6k}{k + 7}$

Answer: C

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

A) 1 B) $\frac{k + 8}{k + 3}$ C) $\frac{1}{k + 4}$ D) $\frac{k + 3}{k + 4}$

Answer: A

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

A) 1 B) $x - y$ C) $x^2 - y$ D) $\frac{1}{x + y}$

Answer: A

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

A) $z + 3$ B) $\frac{z + 3}{z}$ C) $\frac{z + 3}{z^2 + 7z}$ D) $\frac{z}{z^2 + 13z + 42}$

Answer: B

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

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

Answer: D

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

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

Answer: B

Perform the indicated operations and simplify.

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

A) 1 B) $\frac{5}{11x}$ C) $\frac{11x}{5}$ D) $\frac{5}{22x}$

Answer: B

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

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

Answer: B

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

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

Answer: C

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

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

C) $\frac{3m + 5}{2m^2 + 7m - 39}$ D) $\frac{3m^2 + 26m + 46}{(m + 3)(m - 8)(m - 5)}$

Answer: B

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

A) $\frac{24y - 10}{(y - 1)(y + 1)(y - 2)}$ B) $\frac{8y - 10}{(y - 1)(y - 2)}$ C) $\frac{8y - 10}{(y - 1)(y + 1)(y - 2)}$ D) $\frac{10y - 8}{(y - 1)(y + 1)(y - 2)}$

Answer: C

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

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

Answer: A

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

A) $\frac{3(2z + 3)}{z^2}$ B) $\frac{3(2 - 3z)}{z^2}$ C) $\frac{3(2 + 3z)}{z^2}$ D) $\frac{3(3z - 2)}{z}$

Answer: B

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

A) $\frac{4a + 5b}{a^2 - b^2}$ B) $\frac{4a + 5b}{a + b}$ C) $\frac{2ab - b + 4}{a + b + 1}$ D) $\frac{(a - b)(4a + 5b)}{a^2 - b^2}$

Answer: B

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

A) $\frac{49m - 13p}{(3m + p)(m - 3p)(5m - p)}$ B) $\frac{19m - 23p}{(3m + p)(m - 3p)(5m - p)}$

C) $\frac{49m - 23p}{(3m + p)(m - 3p)(5m - p)}$ D) $\frac{19m - 13p}{(3m + p)(m - 3p)(5m - p)}$

Answer: B

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

A) $\frac{25x^2 + 80x + 15}{2x}$ B) $\frac{25x^2 + 80x + 15}{10x^2 + 2x}$ C) $\frac{5(x + 3)}{10x^2 + 2x}$ D) $\frac{5(x + 3)}{2x}$

Answer: D

Solve the equation.

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

A) $-\frac{8}{3}$ B) $\frac{4}{3}$ C) $-\frac{4}{13}$ D) $\frac{8}{13}$

Answer: C

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

A) $\frac{7}{9}$ B) $\frac{7}{11}$ C) 3 D) $\frac{27}{11}$

Answer: C

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

A) 1 B) $-\frac{3}{4}$ C) -4 D) -1

Answer: D

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

A) 0.1 B) 9 C) 0.9 D) 1

Answer: B

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

A) 8 B) 5.8 C) 5.4 D) -34

Answer: A

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

A) 32 B) 28 C) -32 D) -28

Answer: C

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

A) $-\frac{3}{11}$ B) $\frac{6}{7}$ C) $-\frac{10}{11}$ D) $-\frac{6}{11}$

Answer: D

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

A) 26 B) 52 C) 54 D) 50

Answer: C

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

A) $-\frac{1}{2}$ B) $-\frac{1}{16}$ C) $\frac{1}{16}$ D) $\frac{1}{2}$

Answer: D

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

A) $\frac{3}{8}$ B) $\frac{19}{40}$ C) $\frac{21}{40}$ D) $\frac{5}{8}$

Answer: D

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

A) -2 B) $-\frac{1}{5}$ C) $-\frac{5}{2}$ D) $-\frac{5}{3}$

Answer: A

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

A) 1 B) –1 C) –8 D) $\frac{1}{8}$

Answer: B

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

A) $-\frac{13}{6}$ B) $-\frac{13}{4}$ C) $-\frac{5}{6}$ D) $-\frac{5}{4}$

Answer: A

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

A) $\frac{1}{8}$ B) 1 C) –1 D) –8

Answer: C

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

A) 5 B) 14 C) –9 D) –14

Answer: A

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

A) – 15 B) 1 C) 4 D) $\frac{9}{7}$

Answer: B

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

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

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

Answer: A

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

A) $\frac{3}{2}, \frac{3}{2}$ B) $-\frac{2}{3}, -\frac{3}{2}$ C) $-\frac{3}{2}, -\frac{3}{2}$ D) $\frac{2}{3}, \frac{2}{3}$

Answer: C

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

A) –3, 7 B) $-\frac{1}{3}, 7$ C) $-\frac{1}{3}, 3$ D) $\frac{1}{20}, -\frac{1}{3}$

Answer: B

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

A) 0 B) 3, – 3 C) – 3, 0 D) 3, 0

Answer: D

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

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

Answer: B

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

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

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

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

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

Answer: C

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

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

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

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

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

Answer: C

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

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

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

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

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

Answer: B

143) $x^2 - x = 12$

A) 3, 4 B) 1, 12 C) −3, −4 D) −3, 4

Answer: D

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

A) −12, 2 B) 12, 2 C) 12, −2 D) −12, 1

Answer: A

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

A) −5, 6 B) $-\frac{1}{6}, \frac{1}{5}$ C) 5, 6 D) −6, 5

Answer: D

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

A) $\sqrt{26} \approx 5.099$ B) 54 C) 27 D) −27

Answer: C

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

A) 6, –2 B) 0, 4 C) 0, – 3 D) No solution

Answer: A

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

A) No solution B) –6, 8 C) –5, 8 D) 6, –8

Answer: D

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

A) $\sqrt{2} \approx 1.414$ B) 0 C) 6 D) –6

Answer: D

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

A) 2 B) $-\frac{1}{2}$ C) $\frac{1}{2}$ D) –2

Answer: D

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

A) 8 B) $\sqrt{\frac{29}{20}} \approx 1.204$ C) –4 D) –8

Answer: D

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

A) 3 B) –3 C) $-\frac{12}{5}$ D) $\frac{3}{2}$

Answer: A

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

A) $-\frac{1}{3}$ B) $-\frac{4}{3}$ C) $\frac{1}{7}$ D) $\frac{1}{3}$

Answer: D

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

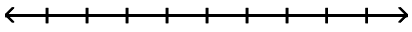
A) 6 B) 1 C) No solution D) –1

Answer: C

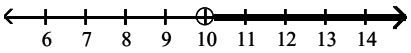
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Write the expression in interval notation. Graph the interval.

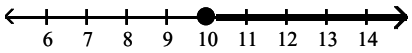
155) $x > 10$



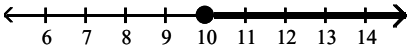
A) $(10, \infty)$



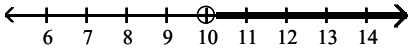
B) $[10, \infty]$



C) $[10, \infty)$

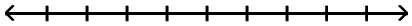


D) $(10, \infty]$

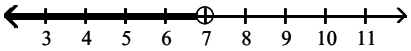


Answer: A

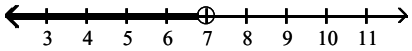
156) $x < 7$



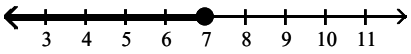
A) $[-\infty, 7)$



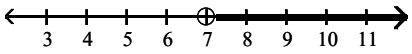
B) $(-\infty, 7)$



C) $(-\infty, 7]$

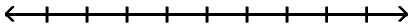


D) $(7, \infty)$

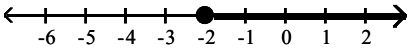


Answer: B

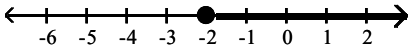
157) $x \geq -2$



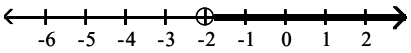
A) $[-2, \infty)$



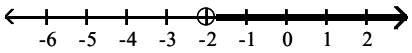
B) $[-2, \infty]$



C) $(-2, \infty]$

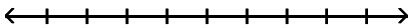


D) $(-2, \infty)$

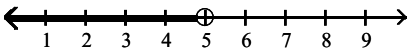


Answer: A

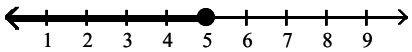
158) $x \leq 5$



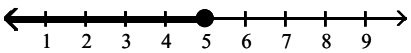
A) $(-\infty, 5)$



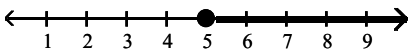
B) $[-\infty, 5]$



C) $(-\infty, 5]$



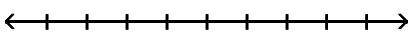
D) $[5, \infty)$



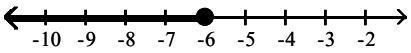
Answer: C

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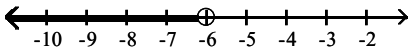
159) $-6 \geq x$



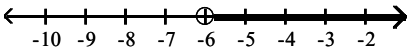
A) $(-\infty, -6]$



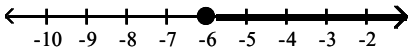
B) $[-\infty, -6)$



C) $(-6, \infty)$

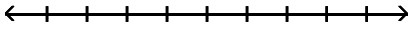


D) $[-6, \infty)$

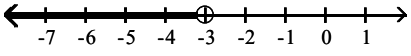


Answer: A

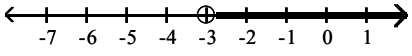
160) $-3 < x$



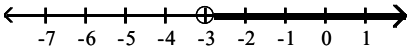
A) $(-\infty, -3)$



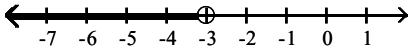
B) $(-3, \infty]$



C) $(-3, \infty)$

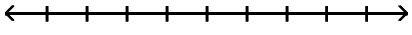


D) $[-\infty, -3)$

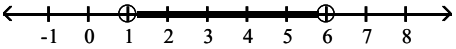


Answer: C

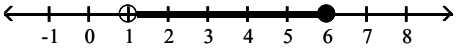
161) $1 < x < 6$



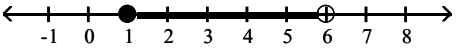
A) $(1, 6)$



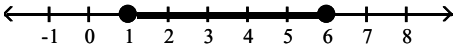
B) $(1, 6]$



C) $[1, 6)$

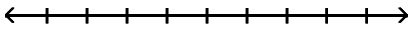


D) $[1, 6]$

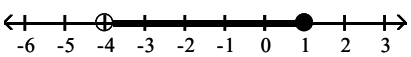


Answer: A

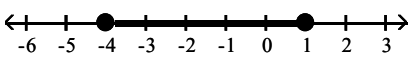
162) $-4 \leq x \leq 1$



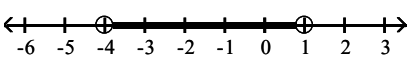
A) $(-4, 1]$



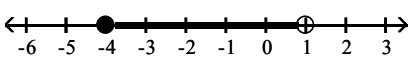
B) $[-4, 1]$



C) $(-4, 1)$



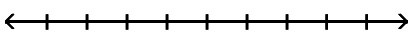
D) $[-4, 1)$



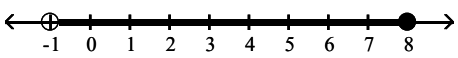
Answer: B

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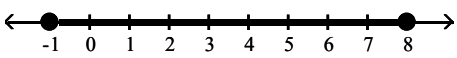
163) $-1 < x \le 8$



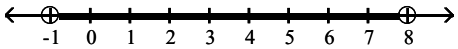
A) $(-1, 8]$



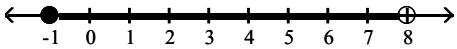
B) $[-1, 8]$



C) $(-1, 8)$



D) $[-1, 8)$



Answer: A

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

164) $(-4, 4]$

A) $-4 < x \le 4$ B) $-4 \le x \le 4$ C) $x \le 4$ D) $-4 < x < 4$

Answer: A

165) $[-4, 4)$

A) $-4 < x \le 4$ B) $-4 \le x \le 4$ C) $x < 4$ D) $-4 \le x < 4$

Answer: D

166) $[9, \infty)$

A) $x < 9$ B) $x > 9$ C) $x \le 9$ D) $x \ge 9$

Answer: D

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

A) $x > \frac{6}{5}$ B) $5 \le x \le 6$ C) $x \le \frac{6}{5}$ D) $x < \frac{6}{5}$

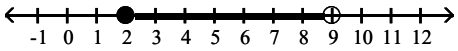
Answer: D

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

A) $x < \frac{5}{7}$ B) $x \le \frac{5}{7}$ C) $x > \frac{5}{7}$ D) $7 \le x \le 5$

Answer: B

169)

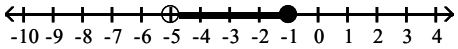


A) $2 \le x < 9$ B) $2 < x \le 9$ C) $2 \le x \le 9$ D) $2 < x < 9$

Answer: A

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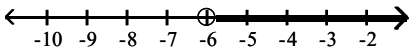
170)



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

Answer: D

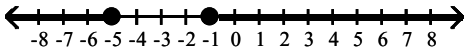
171)



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

Answer: C

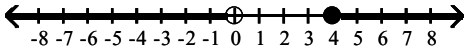
172)



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

Answer: A

173)

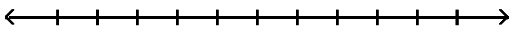


A) $x < 0$ or $x > 4$ B) $x < 0$ or $x \ge 4$ C) $0 \le x \le 4$ D) $0 < x \le 4$

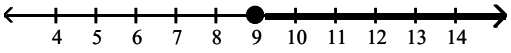
Answer: B

Solve the inequality and graph the solution.

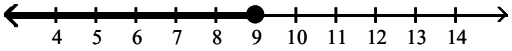
174) $2x - 10 \ge 8$



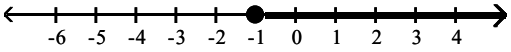
A) $[9, \infty)$



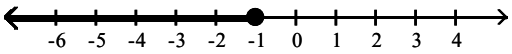
B) $(-\infty, 9]$



C) $[-1, \infty)$



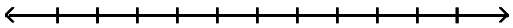
D) $(-\infty, -1]$



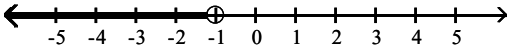
Answer: A

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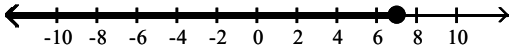
175) $9x - 6 \leq 2x - 13$



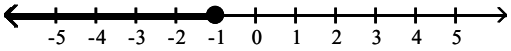
A) $(-\infty, -1)$



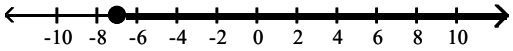
B) $(-\infty, 7]$



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

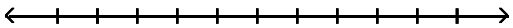


D) $[-7, \infty)$

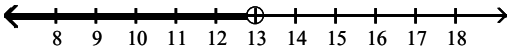


Answer: C

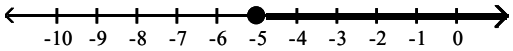
176) $-3 + 13t - 10 \geq 12t - 18$



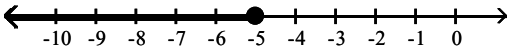
A) $(-\infty, 13)$



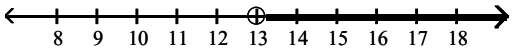
B) $[-5, \infty)$



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

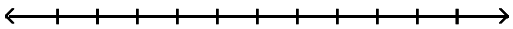


D) $(13, \infty)$

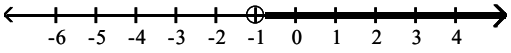


Answer: B

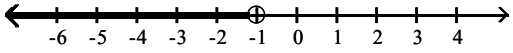
177) $9y - 6 > 3(2y - 3)$



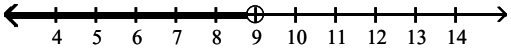
A) $(-1, \infty)$



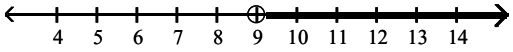
B) $(-\infty, -1)$



C) $(-\infty, 9)$

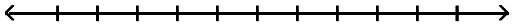


D) $(9, \infty)$

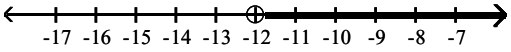


Answer: A

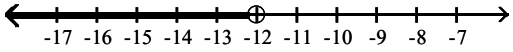
178) $-3(3z - 3) < -12z + 3$



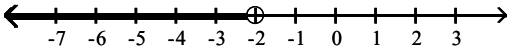
A) $(-12, \infty)$



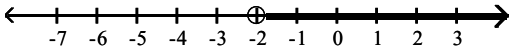
B) $(-\infty, -12)$



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



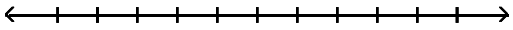
D) $(-2, \infty)$



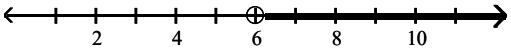
Answer: C

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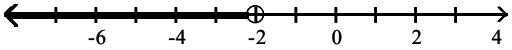
179) $m - 3(m - 8) < 2m$



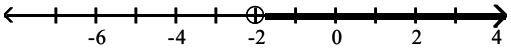
A) $(6, \infty)$



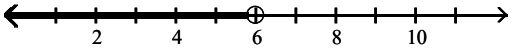
B) $(-\infty, -2)$



C) $(-2, \infty)$

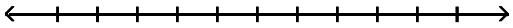


D) $(-\infty, 6)$

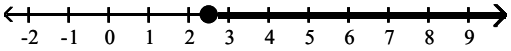


Answer: A

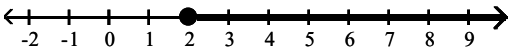
180) $21 - (3x + 5) \leq 3(x - 2) + 5x$



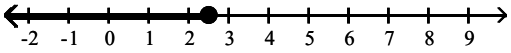
A) $\left[\frac{32}{11}, \infty\right)$



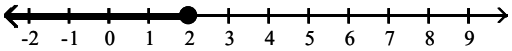
B) $[2, \infty)$



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

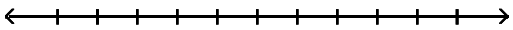


D) $(-\infty, 2]$

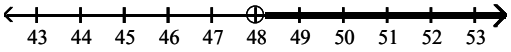


Answer: B

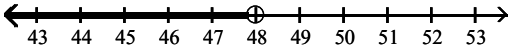
181) $-7(x - 6) + 11x < -3(-2x + 2) - 3x$



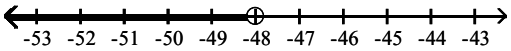
A) $(48, \infty)$



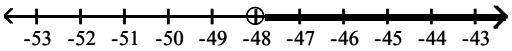
B) $(-\infty, 48)$



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



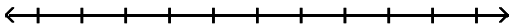
D) $(-48, \infty)$



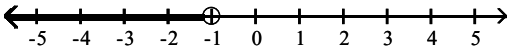
Answer: C

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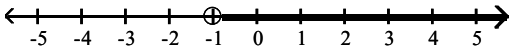
182) $\frac{1}{3}(x - 2) > \frac{1}{6}(5x + 1)$



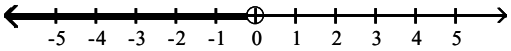
A) $(-\infty, -1)$



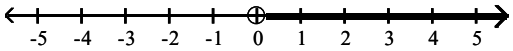
B) $(-1, \infty)$



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

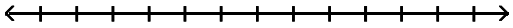


D) $\left(-\frac{5}{3}, \infty\right)$

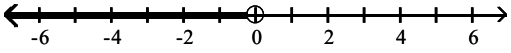


Answer: C

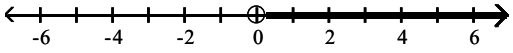
183) $\frac{4}{3}(3 + 4k) > \frac{3}{5}(5k - 1)$



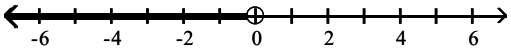
A) $\left(-\infty, -\frac{69}{35}\right)$



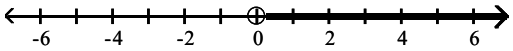
B) $\left(-\frac{69}{35}, \infty\right)$



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



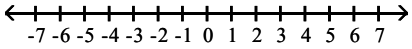
D) $\left(-\frac{4}{35}, \infty\right)$



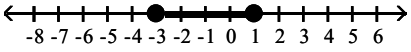
Answer: B

Solve the inequality, then graph the solution.

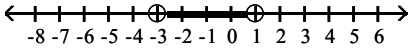
184) $-2 < -2x \leq 6$



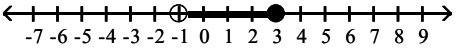
A) $[-3, 1]$



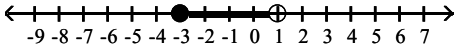
B) $(-3, 1)$



C) $(-1, 3]$



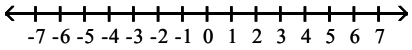
D) $[-3, 1)$



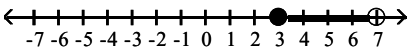
Answer: D

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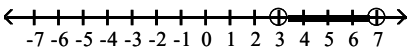
185) $13 < 3y + 4 \leq 25$



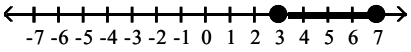
A) [3, 7)



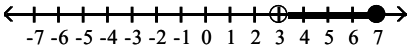
B) (3, 7)



C) [3, 7]

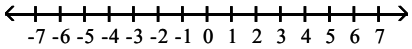


D) (3, 7]

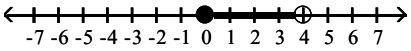


Answer: D

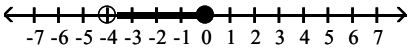
186) $2 < -5z + 2 \leq 22$



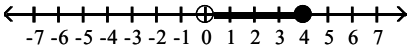
A) [0, 4)



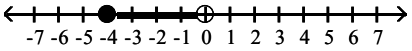
B) (–4, 0]



C) (0, 4]

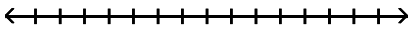


D) [–4, 0)

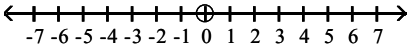


Answer: D

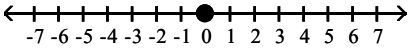
187) $3 < \dfrac{13x - 15}{6} < 12$



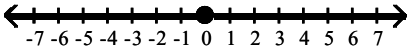
A) $\left(\dfrac{33}{13}, \dfrac{87}{13}\right)$



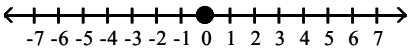
B) $\left(-\dfrac{33}{13}, \dfrac{87}{13}\right)$



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



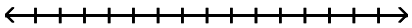
D) $\left(-\dfrac{87}{13}, \dfrac{33}{13}\right)$



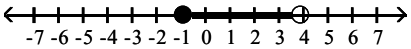
Answer: A

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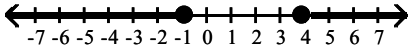
188) $-4 < \frac{7 - 10x}{8} \leq 2$



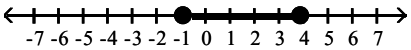
A) $\left[-\frac{9}{10}, \frac{39}{10}\right)$



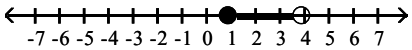
B) $\left(-\infty, -\frac{9}{10}\right] \cup \left[\frac{39}{10}, \infty\right)$



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



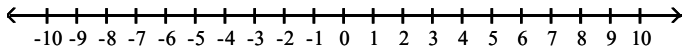
D) $\left[\frac{9}{10}, \frac{39}{10}\right)$



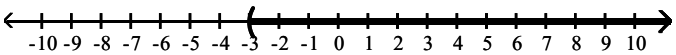
Answer: A

Solve the quadratic inequality. Graph the solution.

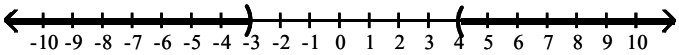
189) $(x - 4)(x + 3) > 0$



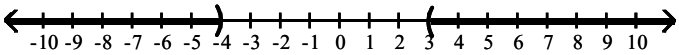
A) $(-3, \infty)$



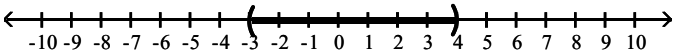
B) $(-\infty, -3) \cup (4, \infty)$



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



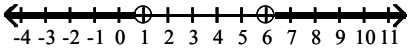
D) $(-3, 4)$



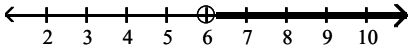
Answer: B

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

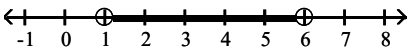
A) $(-\infty, 1) \cup (6, \infty)$



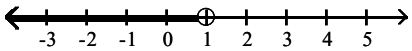
B) $(6, \infty)$



C) $(1, 6)$



D) $(-\infty, 1)$

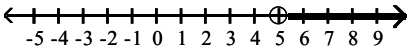


Answer: A

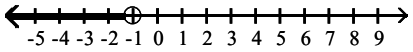
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191) $s^2 - 4s - 5 < 0$

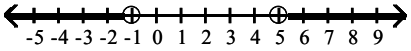
A) $(5, \infty)$



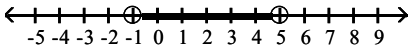
B) $(-\infty, -1)$



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



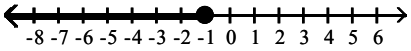
D) $(-1, 5)$



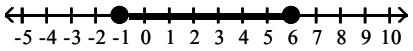
Answer: D

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

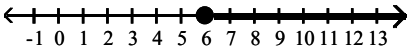
A) $(-\infty, -1]$



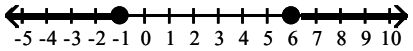
B) $[-1, 6]$



C) $[6, \infty)$



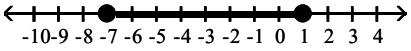
D) $(-\infty, -1] \cup [6, \infty)$



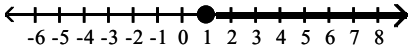
Answer: B

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

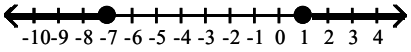
A) $[-7, 1]$



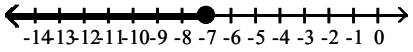
B) $[1, \infty)$



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



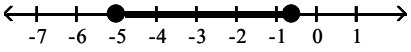
D) $(-\infty, -7]$



Answer: C

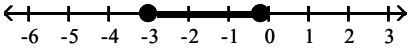
194) $5x^2 + 1x + 3 \ge 0$

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

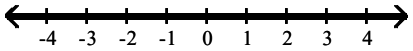


B) no solution

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



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

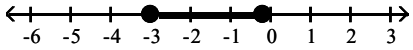


Answer: D

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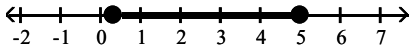
195) $-3x^2 + 7x - 5 \le 0$

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

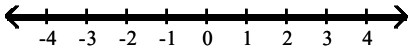


B) no solution

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



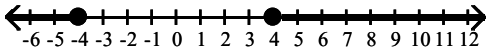
D) $(-\infty,\infty)$



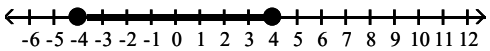
Answer: D

196) $x^2 \ge 16$

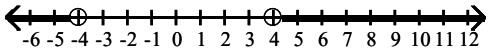
A) $(-\infty, -4] \cup [4, \infty)$



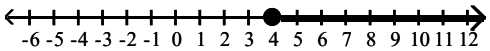
B) $[-4, 4]$



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



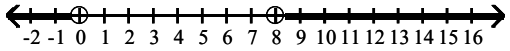
D) $[4, \infty)$



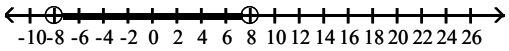
Answer: A

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

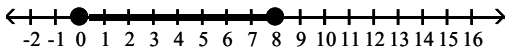
A) $(-\infty, 0) \cup (8, \infty)$



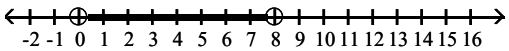
B) $(-8, 8)$



C) $[0, 8]$



D) $(0, 8)$



Answer: D

Solve the inequality.

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

A) $\left(-\infty, \frac{6}{5}\right)$ B) $\left(-\infty, -\frac{5}{6}\right)$ C) $\left(-\frac{6}{5}, \infty\right)$ D) $(0, \infty)$

Answer: C

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

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

Answer: A

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

A) no solution B) $\left(-7, -\frac{5}{2}\right)$ C) $\left(-\infty, -7\right) \cup \left(-\frac{5}{2}, \infty\right)$ D) $\left(\frac{5}{2}, 7\right)$

Answer: B

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

A) no solution B) $(-4, \infty)$ C) $(-\infty, \infty)$ D) $(-2, \infty)$

Answer: A

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

A) $(-\infty, \infty)$ B) $(-9, \infty)$ C) no solution D) $(-\infty, -9)$

Answer: B

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

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

Answer: C

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

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

Answer: C

Evaluate the expression. Write your answer without exponents.

205) 4^{-3}

A) $\frac{1}{-64}$ B) 64 C) -64 D) $\frac{1}{64}$

Answer: D

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

A) 49 B) 343 C) 21 D) 2,401

Answer: B

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

A) $\frac{27}{32}$ B) $\frac{32}{27}$ C) $\frac{16}{9}$ D) $\frac{9}{16}$

Answer: D

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

A) −25 B) 25 C) 125 D) −125

Answer: D

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

A) 3 B) $-\frac{1}{3}$ C) $\frac{1}{3}$ D) −3

Answer: B

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

A) −25 B) $\frac{1}{-25}$ C) 25 D) $\frac{1}{25}$

Answer: D

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

A) −16 B) $-\frac{1}{16}$ C) 16 D) $\frac{1}{16}$

Answer: D

212) 6^0

A) −1 B) 1 C) 0 D) 6

Answer: B

213) $(-13)^0$

A) −13 B) 1 C) 0 D) −1

Answer: B

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

A) $\frac{49}{16}$ B) $\frac{1}{49}$ C) $\frac{4}{49}$ D) $\frac{16}{49}$

Answer: D

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

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

A) $\frac{m}{6^{23}}$ B) $6^{11} m$ C) $6^{23} m$ D) $\frac{m}{6^{11}}$

Answer: C

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

A) $7^{17}p$ B) $\frac{7^{11}}{p}$ C) $\frac{1}{7^{17}p}$ D) $\frac{1}{7^{11}p}$

Answer: C

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

A) 1 B) 8^{12} C) 2^{12} D) 2^5

Answer: C

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

A) $\frac{1}{4}$ B) 4^8 C) $\frac{4}{x}$ D) 4

Answer: B

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

A) 4x B) 4^5 C) $\frac{1}{4^5}$ D) 4

Answer: B

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

A) x^{94} B) $\frac{1}{x^{94}}$ C) x^{68} D) x^{20}

Answer: C

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

A) x^{81} B) $\frac{1}{x^{81}}$ C) $\frac{1}{x^{27}}$ D) x^4

Answer: B

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

A) $\frac{y^{20}}{x^8}$ B) $\frac{1}{x^8y^{20}}$ C) $\frac{x^8}{y^{20}}$ D) $\frac{x^8}{y^{15}}$

Answer: C

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

A) $\frac{1}{x^6y^2}$ B) $\frac{y^2}{x^6}$ C) $\frac{x^6}{y^4}$ D) $\frac{y^2}{x^{12}}$

Answer: B

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

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

A) $\frac{z+m}{z-m}$ B) $\frac{z+m}{m}$ C) $\frac{z+m}{z}$ D) $\frac{z-m}{z}$

Answer: A

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

A) $\frac{b-a}{ab}$ B) $\frac{b^2-a^2}{a^2b^2}$ C) $\frac{b^2+a^2}{a^2b^2}$ D) $\frac{b^2-a^2}{ab^2}$

Answer: B

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

A) $\frac{m+16k}{4m}$ B) $\frac{m+16k}{4k}$ C) $\frac{m-16k}{4km}$ D) $\frac{m+16k}{4km}$

Answer: D

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

A) $\frac{a+b}{ab}$ B) $\frac{ab}{a-b}$ C) $\frac{ab}{a+b}$ D) $\frac{ab}{a}$

Answer: C

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

A) $\frac{y^2-x^2}{y^2}$ B) $\frac{y^2}{y^2+x^2}$ C) $\frac{y^2}{y^2-x^2}$ D) $\frac{y}{y^2-x^2}$

Answer: C

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

A) $54b-36a$ B) $\frac{2}{9}$ C) $\frac{4b-6a}{-9}$ D) $-36b+54a$

Answer: D

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

A) 1 B) $\frac{1}{-24xy}$ C) xy D) $\frac{1}{xy}$

Answer: D

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

A) $\frac{-32ab}{8a - 4b}$ B) $\frac{ab}{8b - 4a}$ C) $\frac{8a - 4b}{ab}$ D) $\frac{ab}{-4b + 8a}$

Answer: D

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

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

C) $\frac{m^2n^2}{(3n + 5m)(3n - 5m)^2}$ D) $\frac{8}{9m^{-1} - 25n^{-1}}$

Answer: B

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

A) $\frac{8y + 6x^3}{x^3y}$ B) $\frac{8y + 6x^3}{48}$ C) $\frac{8y + 6x}{xy}$ D) $\frac{48 + x^3y}{8y}$

Answer: A

Evaluate the expression.

234) $324^{1/2}$

A) 36 B) 18 C) 9 D) 72

Answer: B

235) $8^{1/3}$

A) 16 B) 48 C) 6 D) 2

Answer: D

236) $16^{1/4}$

A) 2 B) 32 C) 8 D) 16

Answer: A

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

A) –27 B) 81 C) 243 D) –3

Answer: D

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

A) $\frac{7}{4}$ B) $\frac{7}{5}$ C) $\frac{6}{5}$ D) $\frac{6}{4}$

Answer: A

239) $216^{4/3}$

A) 1,296 B) 279,936 C) 7,776 D) 46,656

Answer: A

240) $81^{5/4}$

A) 2,187 B) 19,683 C) 243 D) 6,561

Answer: C

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

A) 78,125 B) 625 C) 390,625 D) 1,953,125

Answer: B

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

A) $\frac{1}{3}$ B) $\frac{1}{9}$ C) -9 D) $-\frac{1}{9}$

Answer: B

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

A) $\frac{25}{4}$ B) $-\frac{25}{4}$ C) $\frac{4}{25}$ D) $\frac{4}{125}$

Answer: C

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

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

A) $5a^{-4}$ B) $\frac{a^2}{25}$ C) $\frac{5}{a^3}$ D) $\frac{25}{a^2}$

Answer: D

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

A) $\frac{x^{3/5}}{y^4}$ B) x^3y^{14} C) $\frac{x^{7/4}}{y^{3/11}}$ D) $x^{3/5}y^7$

Answer: D

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

A) $2\,x^8$ B) $2^4\,x^7$ C) $\frac{2^4}{x^4}$ D) $\frac{2^6}{x^8}$

Answer: C

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

A) $-\frac{1}{12k^{10}}$ B) $-6k^{11}$ C) $\frac{1}{12\,k^{9/2}}$ D) $\frac{3}{k^{13/2}}$

Answer: C

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

A) $5^{4/5}m^5$ B) $-5^{2/5}m^5$ C) $10^{4/25}m^6$ D) $\frac{5^{4/5}}{m^5}$

Answer: A

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

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

Answer: B

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

A) $\frac{x}{2^6}$ B) $2^{31/5}x$ C) $\frac{2^{33/5}}{x}$ D) $2^{29/5}x$

Answer: B

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

A) $\frac{z^2}{x^{3/5}y^{8/3}}$ B) $\frac{z^2}{x^{3/5}y^4}$ C) $\frac{z}{xy^{1/3}}$ D) $xy^{1/3}$

Answer: A

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

A) $\frac{p^2}{m^2n^3}$ B) $\frac{p^3}{m^{8/3}n^3}$ C) $\frac{p^2}{m^{5/3}n^3}$ D) $\frac{m^2}{n^3p^2}$

Answer: A

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

A) $\dfrac{m^{4/9} \cdot n^{10/7}}{k^{8/5}}$ B) $\dfrac{n^{10/7}}{k^{6/5} \cdot m^{4/9}}$ C) $\dfrac{m^{4/9} \cdot n^{10/7}}{k^{6/5}}$ D) $\dfrac{m^{4/9} \cdot n^{6/7}}{k^{8/5}}$

Answer: A

Factor the expression.

254) $(p - 7)(a + 4) + (p - 7)(a + 3)$

A) $(p - 7)(a + 7)$ B) $(p - 7)(a^2 + 7)$ C) $(p - 7)(2a + 7)$ D) $(p - 7)(a - 7)$

Answer: C

255) $(8q + 3)(11q + 8) + (8q + 3)(q - 8)$

A) $(8q + 3)(12q)$ B) $(8q + 3)(12q + 16)$ C) $(8q + 3)(12q - 16)$ D) $(16q + 6)(12q)$

Answer: A

256) $2(x + y)^5 - 4(x + y)^4 + 6(x + y)^6$

A) $2(x + y)^4[x + y - 2 + 3(x + y)^2]$ B) $(x + y)^4[2x + 2y - 4 + 6(x + y)^2]$

C) $2(x + y)^5(-2 + 3x + 3y)$ D) $2(x + y)[(x + y)^4 - 2(x + y) + 3(x + y)^5]$

Answer: A

257) $15(p + 2)^2 + 13(p + 2) + 2$

A) $(3p + 7)(5p + 12)$ B) $(3p + 4)(5p + 3)$ C) $(3p + 2)(5p + 1)$ D) $(3p + 8)(5p + 11)$

Answer: D

258) $20(m - 2)^2 - 3(m - 2) - 2$

A) $(5m - 12)(4m - 7)$ B) $(5m + 2)(4m + 1)$ C) $(5m + 4)(4m + 3)$ D) $(5m + 11)(4m + 10)$

Answer: A

259) $a^2(a + b)^2 - ab(a + b)^2 - 20b^2(a + b)^2$

A) $(a - 5b)(a + 4b)(a + b)$ B) $(a + b)^2(a - 5)(a + 4)$

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

Answer: D

260) $4x^2(x^2 + 4)^2 - 2x(4x^3 + 1)(x^2 + 4)$

A) $2x(x^2 + 4)(-2x^3 + 8x - 1)$ B) $2x(x^2 + 4)(-4x^3 + 2x^2 + 7)$

C) $2x(x^2 + 4)^2(-2x^3 + 8x - 1)$ D) $2x(x^2 + 4)(-2x^3 + 8x + 1)$

Answer: A

261) $6m^{1/2} + 4m^{-1/2}$

A) $m^{-1/2}(6m^{1/2} + 4)$ B) $m^{-1/2}(6m - 4)$ C) $m^{-1/2}(6m + 4)$ D) $m^{1/2}(6m + 4)$

Answer: C

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262) $x(5x + 3)^2(x^2 - 4)^{-1/2} + 5(x^2 - 4)^{1/2}(5x + 3)$

A) $(5x + 3)(x^2 - 4)^{1/2}(10x^2 + 3x - 20)$

B) $(5x + 3)^2(x^2 - 4)^{-1/2}(5x^2 + x - 20)$

C) $(5x + 3)(x^2 - 4)^{-1/2}(10x^2 + 3x - 20)$

D) $(5x + 3)(x^2 - 4)^{-1/2}(5x^2 + 5x - 17)$

Answer: C

263) $(x - 7)^{-3/2} - (x - 7)^{-1/2} + (x - 7)^{1/2}$

A) $(x - 7)^{-3/2}(x^2 - 15x + 57)$

B) $(x - 7)^{3/2}(x^2 + 14x - 57)$

C) $(x - 7)^{-3/2}(x^2 - 15x - 50)$

D) $(x - 7)^{-3/2}(x^2 + 15x - 57)$

Answer: A

Simplify. Assume that all variables represent positive real numbers.

264) $\sqrt{28}$

A) $4\sqrt{7}$ B) $2\sqrt{7}$ C) 5 D) 2

Answer: B

265) $-\sqrt{125}$

A) 5 B) $-25\sqrt{5}$ C) $-5\sqrt{5}$ D) 11

Answer: C

266) $\sqrt[3]{48}$

A) $2\sqrt[3]{6}$ B) 6 C) 3 D) $6\sqrt[3]{2}$

Answer: A

267) $\sqrt[4]{486}$

A) 4 B) $6\sqrt[4]{3}$ C) 22 D) $3\sqrt[4]{6}$

Answer: D

268) $-\sqrt[4]{2{,}500}$

A) 7 B) $-5\sqrt[4]{4}$ C) $-4\sqrt[4]{5}$ D) -7

Answer: B

269) $\sqrt[3]{-125}$

A) 25 B) -25 C) 5 D) -5

Answer: D

270) $\sqrt{343x^2}$

A) $7\sqrt{7x}$ B) $343x$ C) $7x^2\sqrt{7}$ D) $7x\sqrt{7}$

Answer: D

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271) $\sqrt{108k^7q^8}$

A) $(6k^3q^4)\sqrt{3}$ B) $(6k^7q^8)\sqrt{3k}$ C) $(6q^4)\sqrt{3k^7}$ D) $(6k^3q^4)\sqrt{3k}$

Answer: D

272) $\sqrt[3]{512x^4y^5}$

A) $3xy(\sqrt[3]{xy^2})$ B) $8xy(\sqrt[3]{xy})$ C) $8xy(\sqrt[2]{xy^2})$ D) $8xy(\sqrt[3]{xy^2})$

Answer: D

273) $\sqrt[3]{-64a^8b^5}$

A) $4ab(\sqrt[3]{a^2b^2})$ B) $4ab(\sqrt[3]{a^3b^3})$ C) $4(\sqrt{a^2b^2})$ D) $-4a^2b(\sqrt[3]{a^2b^2})$

Answer: D

Simplify the expression by removing as many factors as possible from under the radical. Assume that all variables represent positive real numbers.

274) $\sqrt{5} \cdot \sqrt{5}$

A) 5 B) 10 C) $\sqrt{25}$ D) 25

Answer: A

275) $\sqrt{2} \cdot \sqrt{8}$

A) 32 B) 16 C) 4 D) 8

Answer: C

276) $\sqrt{147} \cdot \sqrt{3}$

A) $7\sqrt{3}$ B) $3\sqrt{7}$ C) 21 D) 441

Answer: C

277) $\sqrt{5} \cdot \sqrt{10}$

A) $5\sqrt{2}$ B) $2\sqrt{5}$ C) $25\sqrt{2}$ D) 10

Answer: A

278) $\sqrt{15} \cdot \sqrt{27}$

A) $9\sqrt{5}$ B) $-9\sqrt{5}$ C) $-15\sqrt{3}$ D) $15\sqrt{3}$

Answer: A

279) $\sqrt{13x^3} \cdot \sqrt{13x^5}$

A) $\sqrt{13x^4}$ B) $\sqrt{169x^8}$ C) $13x^4$ D) $x^4\sqrt{26}$

Answer: C

280) $\sqrt[5]{t} \cdot \sqrt{t}$

A) $\sqrt[7]{2t}$ B) $\sqrt[7]{t^2}$ C) $\sqrt[10]{t^7}$ D) $\sqrt[5]{t^2}$

Answer: C

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281) $\sqrt[5]{x} \cdot \sqrt[7]{x^3}$

A) $\sqrt[12]{x^4}$ B) $\sqrt[35]{x^4}$ C) $\sqrt[12]{x^3}$ D) $\sqrt[35]{x^{22}}$

Answer: D

282) $\sqrt{m} \cdot \sqrt[4]{m^{13}}$

A) $m^6\sqrt{m}$ B) $\sqrt[4]{m}$ C) $m^3\sqrt[4]{m^3}$ D) $m^6\sqrt[4]{m}$

Answer: C

Perform the indicated operations and simplify. Assume all variables represent positive real numbers.

283) $-9\sqrt{98} - 3\sqrt{18} + 6\sqrt{162}$

A) $-9\sqrt{2}$ B) $-189\sqrt{2}$ C) $189\sqrt{2}$ D) $-18\sqrt{2}$

Answer: D

284) $\sqrt{108} - 8\sqrt{75} - 9\sqrt{12}$

A) $52\sqrt{3}$ B) $63\sqrt{3}$ C) $-52\sqrt{3}$ D) $-75\sqrt{3}$

Answer: C

285) $\sqrt{2} - 2\sqrt{98} - 4\sqrt{128}$

A) $-45\sqrt{228}$ B) $-6\sqrt{2}$ C) $-6\sqrt{228}$ D) $-45\sqrt{2}$

Answer: D

286) $\sqrt{5a} - 7\sqrt{45a} + 4\sqrt{20a}$

A) $-12\sqrt{70a}$ B) $-3\sqrt{5a}$ C) $-12\sqrt{5a}$ D) $-3\sqrt{70a}$

Answer: C

287) $\sqrt{5x^2} + 6\sqrt{125x^2} + 2\sqrt{125x^2}$

A) $8x\sqrt{5}$ B) $8x\sqrt{171}$ C) $41x\sqrt{5}$ D) $41x\sqrt{171}$

Answer: C

288) $\sqrt{5} + 3\sqrt{45} + 6\sqrt{20}$

A) $-22\sqrt{5}$ B) $-3\sqrt{5}$ C) $22\sqrt{5}$ D) $3\sqrt{5}$

Answer: C

289) $10\sqrt[3]{3} + 13\sqrt[3]{3}$

A) $23\sqrt[3]{9}$ B) $3\sqrt[3]{3}$ C) $23\sqrt[3]{6}$ D) $23\sqrt[3]{3}$

Answer: D

290) $5\sqrt[3]{2} - 4\sqrt[3]{128}$

A) $11\sqrt[3]{2}$ B) $5\sqrt[3]{2} - 4\sqrt[3]{128}$ C) $-11\sqrt[3]{2}$ D) $1\sqrt[3]{2}$

Answer: C

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291) $10\sqrt[4]{x^7} - 3x\sqrt[4]{x^3}$

A) $7x\sqrt[4]{x^3}$ B) $7x\sqrt[4]{x^7}$ C) $10\sqrt[4]{x^7} - 3x\sqrt[4]{x^3}$ D) $13\sqrt[4]{x^3}$

Answer: A

292) $4\sqrt[3]{a} + \sqrt[3]{8a}$

A) $8\sqrt[3]{a}$ B) $4\sqrt[3]{a} + \sqrt[3]{8a}$ C) $5\sqrt[3]{8a}$ D) $6\sqrt[3]{a}$

Answer: D

Simplify the root, if possible.

293) $\sqrt{16x^2 + 16x + 4}$

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

C) cannot be simplified D) $|4x + 2|$

Answer: D

294) $\sqrt{36m^2 + 49n^2}$

A) cannot be simplified B) $|6m + 7n|$

C) $6m + 7n$ D) $(6m + 7n)^2$

Answer: A

295) $\sqrt{z^2 - 10z + 25}$

A) $-z + 5$ B) $|z| - 5$ C) $|z - 5|$ D) $z - 5$

Answer: C

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

296) $-\sqrt{\frac{81}{28}}$

A) -28 B) $-\frac{9\sqrt{7}}{7}$ C) $-\frac{9\sqrt{7}}{14}$ D) $-9\sqrt{7}$

Answer: C

297) $\frac{7}{8 - \sqrt{10}}$

A) $\frac{7}{8} - \frac{7}{\sqrt{10}}$ B) $\frac{56 + 7\sqrt{10}}{2}$ C) $\frac{56 + 7\sqrt{10}}{54}$ D) $\frac{56 - 7\sqrt{10}}{54}$

Answer: C

298) $\frac{\sqrt{7}}{\sqrt{3} + 8}$

A) $\frac{\sqrt{21} - 8\sqrt{7}}{11}$ B) $\frac{\sqrt{21} - 8\sqrt{7}}{-61}$ C) $\frac{3\sqrt{21} + 37}{24}$ D) $\frac{\sqrt{21} + 8\sqrt{7}}{-61}$

Answer: B

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299) $\frac{2-\sqrt{7}}{2+\sqrt{7}}$

A) $\frac{11+4\sqrt{7}}{-3}$ B) 1 C) $\frac{11-4\sqrt{7}}{-3}$ D) $\frac{-3-4\sqrt{7}}{11}$

Answer: C

300) $\frac{\sqrt{7}}{7\sqrt{2}-\sqrt{7}}$

A) $\frac{1}{13}(\sqrt{2}+1)$ B) $\frac{1}{13}(\sqrt{14}-1)$ C) $\frac{1}{15}(\sqrt{14}+1)$ D) $\frac{1}{13}(\sqrt{14}+1)$

Answer: D

301) $\frac{4}{\sqrt{x}+3}$

A) $\frac{4\sqrt{x}-12}{x-9}$ B) $\frac{16}{x+9}$ C) $\frac{4\sqrt{x}+12}{x+9}$ D) $\frac{16}{x-9}$

Answer: A

302) $\frac{5\sqrt{x}+2}{3\sqrt{x}-3}$

A) $\frac{15x-6}{9x-9}$ B) $\frac{5x+21\sqrt{x}+6}{9x-9}$ C) $\frac{25x+4}{9x-9}$ D) $\frac{15x+21\sqrt{x}+6}{9x-9}$

Answer: D

303) $\frac{3x}{\sqrt{4x+7}}$

A) $\frac{9x^2}{4x+7}$ B) $\frac{3x\sqrt{4x+7}}{4x-7}$ C) $\frac{3x\sqrt{4x+7}}{4x+7}$ D) $\frac{9x^2\sqrt{4x-7}}{4x-7}$

Answer: C

304) $\frac{2}{\sqrt{11}}$

A) $2\sqrt{11}$ B) $\frac{2\sqrt{2}}{11}$ C) $\frac{2\sqrt{11}}{11}$ D) $\frac{2}{11}$

Answer: C

305) $\frac{\sqrt{y}-\sqrt{y+3}}{\sqrt{y}+\sqrt{y+3}}$

A) $\frac{2y+3-2\sqrt{y(y+3)}}{3}$ B) $\frac{-2y-3}{3}$

C) $\frac{-3}{2y+3}$ D) $\frac{-2y-3+2\sqrt{y(y+3)}}{3}$

Answer: D

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

306) $\dfrac{\sqrt{17}+2}{2}$

A) $\dfrac{17}{\sqrt{17}-1}$ B) $\dfrac{13}{2\sqrt{17}-4}$ C) $\dfrac{14}{2\sqrt{17}-1}$ D) $\dfrac{-17}{\sqrt{17}}$

Answer: B

307) $\dfrac{5-\sqrt{7}}{2-\sqrt{3}}$

A) $\dfrac{18}{10+2\sqrt{7}-5\sqrt{3}-\sqrt{21}}$ B) $\dfrac{18}{10-2\sqrt{7}-5\sqrt{3}-\sqrt{21}}$

C) $\dfrac{18}{10-3\sqrt{4}-21}$ D) $\dfrac{18}{10+2\sqrt{7}-5\sqrt{3}-21}$

Answer: A

308) $\dfrac{3+\sqrt{2}}{7+\sqrt{5}}$

A) $\dfrac{7}{21-10\sqrt{7}-10}$ B) $\dfrac{7}{21-7\sqrt{2}-3\sqrt{5}-10}$

C) $\dfrac{7}{21+7\sqrt{2}-3\sqrt{5}-\sqrt{10}}$ D) $\dfrac{7}{21-7\sqrt{2}+3\sqrt{5}-\sqrt{10}}$

Answer: D

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

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

Answer: D

310) $\dfrac{\sqrt{m}-\sqrt{n}}{6+\sqrt{n}}$

A) $\dfrac{m-1}{6\sqrt{m}+6\sqrt{n}+\sqrt{mn}}$ B) $\dfrac{m-n}{6\sqrt{m}+6\sqrt{n}+\sqrt{mn}+n}$

C) $\dfrac{m+n}{6\sqrt{m}-6\sqrt{n}-\sqrt{mn}-n}$ D) $\dfrac{m-n}{6\sqrt{m}+n}$

Answer: B

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1) B
2) D
3) D
4) D
5) B
6) C
7) C
8) B
9) B
10) B
11) B
12) D
13) B
14) C
15) B
16) A
17) D
18) C
19) B
20) A
21) A
22) B
23) A
24) D
25) C
26) A
27) C
28) D
29) A
30) D
31) A
32) D
33) B
34) D
35) C
36) D
37) C
38) B
39) D
40) C
41) C
42) A
43) C
44) C
45) D
46) D
47) B
48) B
49) A
50) B

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51) C
52) B
53) D
54) A
55) C
56) C
57) D
58) C
59) B
60) D
61) B
62) C
63) D
64) C
65) D
66) D
67) D
68) D
69) A
70) A
71) C
72) B
73) A
74) D
75) B
76) A
77) B
78) B
79) A
80) B
81) A
82) C
83) B
84) C
85) A
86) A
87) B
88) D
89) D
90) A
91) B
92) D
93) B
94) D
95) D
96) D
97) C
98) D
99) D
100) C

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101) D
102) D
103) C
104) A
105) A
106) B
107) D
108) B
109) B
110) B
111) C
112) B
113) C
114) A
115) B
116) B
117) B
118) D
119) C
120) C
121) D
122) B
123) A
124) C
125) D
126) C
127) D
128) D
129) A
130) B
131) A
132) C
133) A
134) B
135) A
136) C
137) B
138) D
139) B
140) C
141) C
142) B
143) D
144) A
145) D
146) C
147) A
148) D
149) D
150) D

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151) D
152) A
153) D
154) C
155) A
156) B
157) A
158) C
159) A
160) C
161) A
162) B
163) A
164) A
165) D
166) D
167) D
168) B
169) A
170) D
171) C
172) A
173) B
174) A
175) C
176) B
177) A
178) C
179) A
180) B
181) C
182) C
183) B
184) D
185) D
186) D
187) A
188) A
189) B
190) A
191) D
192) B
193) C
194) D
195) D
196) A
197) D
198) C
199) A
200) B

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201) A
202) B
203) C
204) C
205) D
206) B
207) D
208) D
209) B
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211) D
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225) B
226) D
227) C
228) C
229) D
230) D
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234) B
235) D
236) A
237) D
238) A
239) A
240) C
241) B
242) B
243) C
244) D
245) D
246) C
247) C
248) A
249) B
250) B

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251) A
252) A
253) A
254) C
255) A
256) A
257) D
258) A
259) D
260) A
261) C
262) C
263) A
264) B
265) C
266) A
267) D
268) B
269) D
270) D
271) D
272) D
273) D
274) A
275) C
276) C
277) A
278) A
279) C
280) C
281) D
282) C
283) D
284) C
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286) C
287) C
288) C
289) D
290) C
291) A
292) D
293) D
294) A
295) C
296) C
297) C
298) B
299) C
300) D

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

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