Calculus with Applications 12th edition Lial Test Bank

SKU: 9780135871072-TEST-BANK

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

Perform the indicated operation.

1) $(8x^2 - 3x - 9) + (-5x^2 - 7x + 12)$

A) $-3x^2 + 10x + 3$ B) $3x^2 - 10x + 3$ C) $13x^2 - 10x + 21$ D) $13x^2 - 10x - 21$

Answer: B

2) $(9n^5 + 20n^3 + 5) - (5n^5 - 8n^3 - 2)$

A) $4n^5 + 28n^3 + 3$ B) $39n^8$ C) $4n^5 + 28n^3 + 7$ D) $4n^5 + 25n^3 + 3$

Answer: C

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

A) $3m^5 + 7m^2 + 13m$ B) $23m^8$ C) $8m + 12m^5 + 3m^2$ D) $8m^5 + 12m^2 + 3m$

Answer: D

4) $(4q^2 - 6q - q^3 + 2) - (6q^2 - 6q - q^3 + 7)$

A) $-3q^2 - 2q^3 + 5$ B) $-2q^2 - 5$ C) $-3q^2 - 9$ D) $-2q^2 - 12q - 9$

Answer: B

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

A) $-3p^2 - 6p - 11$ B) $-4p^2 + 2p - 11$ C) $-4p^2 - 2p^3 + 2p + 3$ D) $-3p^2 + 6p + 3$

Answer: D

6) $(7r^4 + 9r^2 - 7r) - (-8r^3 + 3r^2 - 7r - 1)$

A) $7r^4 + 8r^3 + 6r^2 + 1$ B) $8r^4 + 9r^3 + 12r^2 + 1$ C) $11r^7 + 12r^3$ D) $7r^4 - 8r^3 + 12r^2 - 1$

Answer: A

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

A) $11k^8 - 6k^6 + 9k^4 + 7$ B) $4k^4 + 4k^3 + 11k^2 - 3$

C) $11k^4 - 6k^3 + 9k^2 + 7$ D) $14k^{18} + 7$

Answer: C

8) $(9y^7 - 9y^6 - 8y^5 + 1) - (4y^7 - 7y^6 + 6y^5 + 2)$

A) $5y^7 - 16y^6 - 2y^5 + 3$ B) $5y^7 - 2y^6 - 14y^5 - 1$

C) $13y^7 - 16y^6 - 2y^5 - 1$ D) $13y^7 - 16y^6 - 2y^5 + 3$

Answer: B

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

A) $5q^2 + 11q + 1$ B) $5q^2 - 7q - 1$ C) $4q^2 + 11q + 1$ D) $5q^2 + 7q - 1$

Answer: B

10) $0.36(2x^2 + 2x - 5) - (3.23x^2 - 6x + 6.865)$

A) $-2.51x^2 - 4x - 8.665$ B) $-2.51x^2 + 6.72x - 8.665$

C) $-1.23x^2 + 8x - 11.865$ D) $-1.23x^2 + 6.72x - 8.665$

Answer: B

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11) $-5p(4p^2 - 12p + 6)$

A) $-20p^3 + 60p^2 - 30p$ B) $-20p^3 + 60p^2 + 6p$ C) $-20p^3 + 30p^2$ D) $-20p^3 - 12p^2 - 30p$

Answer: A

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

A) $-36m^3 - 8m + 48$ B) $36m^3 + 8m^2 - 48m$

C) $-36m^2 - 8m + 48$ D) $-36m^3 - 8m^2 + 48m$

Answer: D

13) $5y^2(12y^2 - 6y - 1)$

A) $60y^4 - 30y^2 - 5y$ B) $-60y^4 + 30y^3 + 5y^2$ C) $60y^3 - 30y^2 - 5y$ D) $60y^4 - 30y^3 - 5y^2$

Answer: D

14) $(4x + 10)(x + 2)$

A) $x^2 + 18x + 17$ B) $4x^2 + 18x + 20$ C) $4x^2 + 17x + 20$ D) $x^2 + 20x + 18$

Answer: B

15) $(3k + 2)(k + 11)$

A) $3k^2 + 35k + 22$ B) $3k^2 + 33k + 22$ C) $3k^2 + 22k + 35$ D) $3k^2 + 35k + 35$

Answer: A

16) $(m + 12)(-4m - 7)$

A) $-4m^2 - 84m - 55$ B) $-4m^2 - 55m - 55$ C) $-4m^2 - 55m - 84$ D) $-4m^2 - 57m - 84$

Answer: C

17) $(-4p - 10)(-4p - 11)$

A) $-8p^2 + 84p + 110$ B) $16p^2 + 84p + 110$ C) $-8p^2 + 84p + 84$ D) $16p^2 + 84p + 84$

Answer: B

18) $(x - 11y)(x + 3y)$

A) $x^2 - 8xy - 8y^2$ B) $x^2 - 11xy - 33y^2$ C) $x - 8xy - 33y$ D) $x^2 - 8xy - 33y^2$

Answer: D

19) $(a - 3b)(-3a + 7b)$

A) $a^2 + 16ab - 21b^2$ B) $-3a^2 + 16ab + 16b^2$ C) $a^2 + 16ab + 16b^2$ D) $-3a^2 + 16ab - 21b^2$

Answer: D

20) $(3x + 2)(3x - 2)$

A) $9x^2 + 12x - 4$ B) $9x^2 - 4$ C) $3x^2 - 12x - 4$ D) $9x^2 - 12x - 4$

Answer: B

21) $(2r + 5)(2r + 5)$

A) $4r^2 + 25r + 20$ B) $2r^2 + 20r + 19$ C) $2r^2 + 19r + 25$ D) $4r^2 + 20r + 25$

Answer: D

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

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

Answer: C

23) $\left(\frac{1}{3}m-1\right)\left(\frac{5}{3}m-2\right)$

A) $\frac{5}{3}m^2-\frac{7}{3}m+4$ B) $\frac{5}{6}m^2-\frac{7}{3}m+2$ C) $\frac{5}{3}m^2-\frac{7}{3}m+2$ D) $\frac{5}{9}m^2-\frac{7}{3}m+2$

Answer: D

24) $(x+5)(x^2-x+7)$

A) x^3+35 B) $x^3+6x^2+12x+35$ C) $x^3+4x^2+2x+35$ D) x^3+4x^2+35

Answer: C

25) $(m-5)(9m^2+m+8)$

A) $9m^3-44m^2+13m-40$
B) $9m^3-46m^2+3m-40$
C) $9m^3+44m^2+3m-40$
D) $9m^3-44m^2+3m-40$

Answer: D

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

A) $6m^4+2m^3-10m^2-10m-25$
B) $6m^4+2m^3-5m^2-10m-25$
C) $6m^4-8m^3-5m^2-10m-25$
D) $6m^4+2m^3-5m^2+15m-25$

Answer: B

27) $(-4x+6y)(2x-2y+1)$

A) $-8x^2+8xy-4x-12y^2$
B) $-8x^2+20xy-4x-12y^2+6y$
C) $-8x^2+20xy+20y^2$
D) $-8x^2+12xy-4x-12y^2+6y$

Answer: B

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

A) $-12a^4+4a^2b^2+8b^2$
B) $-12a^4+4a^2b+8b^4-4a^2bc$
C) $-12a^4+4a^2b-4a^2c+8b^2+4bc$
D) $-12a^2+4ab-4a^2c+8b^2+4c$

Answer: C

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

A) $3x^4+10x^3-6x^2-20x-8$
B) $3x^4+12x^3-6x^2-20x-8$
C) $3x^4+12x^3-2x^2-20x-8$
D) $3x^4+10x^3-2x^2-20x-8$

Answer: A

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

A) $x^3-5x^2-4x+20$ B) $x^3+4x^2-5x-20$ C) $x^3-9x^2+24x-20$ D) x^3+20

Answer: A

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31) $(n + 2)^2$

A) $n^2 + 4n + 4$ B) $4n^2 + 4n + 4$ C) $n^2 + 4$ D) $n + 4$

Answer: A

32) $(7x - 11y)^2$

A) $7x^2 - 154xy + 121y^2$ B) $49x^2 - 154xy + 121y^2$

C) $7x^2 + 121y^2$ D) $49x^2 + 121y^2$

Answer: B

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

A) $27a^3 - 9a^2b + 3ab^2 - b^3$ B) $27a^3 - b^3$

C) $27a^3 - 27a^2b + 9ab^2 - b^3$ D) $27a^3 - 27a^2b - 9ab^2 - b^3$

Answer: C

Factor out the greatest common factor.

34) $9a^6 + 36a^4$

A) $9(a^6 + 4a^4)$ B) $36(a^2 + 4a)$ C) $a^4(9a^2 + 36)$ D) $9a^4(a^2 + 4)$

Answer: D

35) $10x^3 - 20x^2 + 15x$

A) $5(2x^3 - 4x^2 + 3x)$ B) $5x(2x^2 - 4x + 3)$

C) $5x(2x^2 - 20x^2 + 15x)$ D) $10x(x^2 - 2x + 3)$

Answer: B

36) $27m^9 + 6m^6 + 18m^2$

A) $3m^2(9m^7 + 2m^4 + 6)$ B) $3(9m^9 + 2m^6 + 6m^2)$

C) no common factor D) $m^2(27m^7 + 6m^4 + 18)$

Answer: A

37) $84m^9 + 72m^6 + 84m^3$

A) no common factor B) $12m^3(7m^6 + 6m^3 + 7)$

C) $m^3(84m^6 + 72m^3 + 84)$ D) $12(7m^9 + 6m^6 + 7m^3)$

Answer: B

38) $18x^4y^3 - 6x^3y^2 + 10x^2y$

A) $2xy(9x^3y^2 - 3x^2y + 5x)$ B) $2x^2y^2(9x^2y - 3x + 5)$

C) $2x^2y(9x^2y^2 - 3xy + 5)$ D) $2(9x^4y^3 - 3x^3y^2 + 5x^2y)$

Answer: C

39) $24x^9y^8 + 36x^6y^6 + 20x^3y^2$

A) no common factor B) $4x^3y^2(6x^6y^6 + 9x^3y^4 + 5)$

C) $4(6x^9y^8 + 9x^6y^6 + 5x^3y^2)$ D) $4x^3(6x^6y^8 + 9x^3y^6 + 5y^2)$

Answer: B

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40) $72x^8y^7 + 45x^3y^5 + 63x^6y^2$

A) $9x^3y^2(8x^5y^5 + 5y^3 + 7x^3)$ B) $9(8x^8y^7 + 5x^3y^5 + 7x^6y^2)$

C) $9x^3(8x^5y^7 + 5y^5 + 7x^3y^2)$ D) no common factor

Answer: A

41) $13m^2 - 25r^3$

A) $3(4m^2 - 8r^3)$ B) no common factor C) $m^2(13 - 25m)$ D) $2(6m^2 + 12r^3)$

Answer: B

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

42) $x^2 + 3x - 108$

A) prime B) $(x - 12)(x + 1)$ C) $(x + 12)(x - 9)$ D) $(x - 12)(x + 9)$

Answer: C

43) $x^2 - 4x - 45$

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

Answer: A

44) $x^2 + 7x + 10$

A) $(x + 10)(x - 1)$ B) $(x - 5)(x - 2)$ C) $(x + 5)(x + 2)$ D) $(x + 10)(x + 7)$

Answer: C

45) $x^2 - 10x + 24$

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

Answer: D

46) $x^2 - x - 45$

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

Answer: C

47) $4x^2 - 25x - 21$

A) $(4x + 3)(x - 7)$ B) $(x + 4)(x - 7)$ C) $(3x + 4)(x - 7)$ D) $(x - 3)(x - 7)$

Answer: A

48) $9x^2 - 74x + 16$

A) $(2 - 9x)(9x - 2)$ B) $(9x + 14)(9x - 2)$ C) $(9x - 2)(x - 8)$ D) $(9x - 2)(x + 8)$

Answer: C

49) $15z^2 - 2z - 8$

A) $(15z + 2)(z - 4)$ B) prime C) $(3z - 2)(5z + 4)$ D) $(3z + 2)(5z - 4)$

Answer: D

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

A) $(u - 2v)(u + 6v)$ B) prime C) $(u - 2v)(u + v)$ D) $(u + 2v)(u - 6v)$

Answer: D

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51) $x^2 - 9xy + 14y^2$

A) $(x - 14y)(x - y)$ B) prime C) $(x + 7y)(x - 2y)$ D) $(x - 7y)(x - 2y)$

Answer: D

52) $6x^2 - 5xt - 4t^2$

A) $(2x - t)(3x + 4t)$ B) $(2x + t)(3x - 4t)$ C) $(6x + t)(x - 4t)$ D) prime

Answer: B

53) $12m^2 - 31mn + 20n^2$

A) $(4mn + 5)(3mn + 4)$ B) $(4mn - 5)(3mn - 4)$ C) $(4m - 5n)(3m - 4n)$ D) $(4m - 5n)(3m + 4n)$

Answer: C

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

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

Answer: C

55) $24x^2 - 104x - 80$

A) $8(3x - 2)(x + 5)$ B) $8(3x + 2)(x - 5)$ C) $(24x + 16)(x - 5)$ D) prime

Answer: B

56) $6y^2 + 27y - 15$

A) $3(2y + 1)(y - 5)$ B) $3(2y - 1)(y + 5)$ C) $(6y - 3)(y + 5)$ D) prime

Answer: B

57) $2x^2 - 6xy - 8y^2$

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

Answer: B

58) $5y^3 - 5y^2 - 30y$

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

Answer: B

59) $18x^3 - 78x^2 - 60x$

A) $6(3x - 2)(x + 5)$ B) $(x^2 - 5)(18x + 12)$ C) $x(3x + 2)(6x - 30)$ D) $6x(3x + 2)(x - 5)$

Answer: D

60) $24x^2 + 14xy + 2y^2$

A) prime B) $2(3x + y)(4x + y)$ C) $(6x + 2y)(4x + y)$ D) $2(3x - y)(4x - y)$

Answer: B

61) $x^3 - 11x^2 + 30x$

A) $x(x - 5)(x + 6)$ B) $x(x^2 - 11x + 30)$ C) $x(x - 5)(x - 6)$ D) $x(x + 5)(x - 6)$

Answer: C

62) $a^3b - 9a^2b^2 + 20ab^3$

A) $ab(a - 20b)(a - b)$ B) $ab(a - 5b)(a - 4b)$ C) $a(ab - 5)(ab - 4)$ D) $ab(a - 5b)(a + 4b)$

Answer: B

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63) $4x^3 - 28x^2y - 120xy^2$

A) $4x(x - 10y)(x + 3y)$ B) $4(x - 10y)(x + 3y)$ C) $4x(x + 10y)(x - 3y)$ D) $4xy(x - 10y)(x + 3y)$

Answer: A

64) $32x^4 + 72x^3y + 36x^2y^2$

A) $4xy(2x + 1)(4x + 9)$ B) $4x^2y^2(2x + 3)(4x + 3)$

C) $4x^2(2x + 1)(4x + 9)$ D) $4x^2(2x + 3y)(4x + 3y)$

Answer: D

65) $81x^2 - 16$

A) $(9x - 4)^2$ B) prime C) $(9x + 4)(9x - 4)$ D) $(9x + 4)^2$

Answer: C

66) $9k^2 - 49m^2$

A) $(3k - 7m)^2$ B) $(3k + 7m)(3k - 7m)$ C) prime D) $(3k + 7m)^2$

Answer: B

67) $81y^4 - 64$

A) $(9y^2 + 8)(9y^2 - 8)$ B) prime C) $(9y^2 + 8)^2$ D) $(9y^2 - 8)^2$

Answer: A

68) $81s^2 - 25t^4$

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

Answer: A

69) $147a^4 - 48b^2$

A) $3(7a^2 + 4b)^2$ B) $3(7a^2 + 4b)(7a^2 - 4b)$

C) prime D) $3(7a^2 - 4b)^2$

Answer: B

70) $8a^4b - 18b^3$

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

C) $2b(2a - 3b)^2$ D) $2b(2a + 3b)^2$

Answer: A

71) $36x^2 + 25$

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

Answer: D

72) $25x^4 - 49y^4$

A) $-24x^4$ B) prime

C) $(5x^2 - 7y^2)(5x^2 + 7y^2)$ D) $(5x - 7y)(5x + 7y)(5x^2 + 7y^2)$

Answer: C

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73) $100pm^4 - 100pn^4$

A) $100p(m^2 + n^2)(m + n)(m - n)$ B) $p(10m^2 + n^2)(10m + n)(10m - n)$

C) $100p(m^2 - n^2)^2$ D) $100(m^2p + n^2)(mp + n)(mp - n)$

Answer: A

74) $x^4 - 625$

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

C) $(x^2 + 25)(x + 5)(x - 5)$ D) $(x^2 - 25)(x + 5)(x - 5)$

Answer: C

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

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

Answer: D

76) $16x^2 + 24x + 9$

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

Answer: A

77) $x^2 - 6xy + 9y^2$

A) $(x + 3y)^2$ B) prime C) $(x - 3y)(x + 3y)$ D) $(x - 3y)^2$

Answer: D

78) $x^2 - 8x + 64$

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

Answer: A

79) $27x^2 + 90x + 75$

A) $3(3x - 5)(3x + 5)$ B) $(9x + 15)(3x + 5)$ C) $3(9x^2 + 30x + 25)$ D) $3(3x + 5)^2$

Answer: D

80) $196x^2 - 336xy + 144y^2$

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

C) $4(49x^2 - 84xy + 36y)$ D) $(28x - 24y)(7x - 6y)$

Answer: B

Factor completely.

81) $729p^3 - 1$

A) $(9p + 1)(81p^2 - 9p + 1)$ B) $(729p - 1)(p^2 + 9p + 1)$

C) $(9p - 1)(81p^2 + 1)$ D) $(9p - 1)(81p^2 + 9p + 1)$

Answer: D

82) $x^3 - 343$

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

Answer: C

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83) $1{,}000y^3 - 343$

A) $(1{,}000y - 7)(y^2 + 70y + 49)$ B) $(10y - 7)(100y^2 + 49)$

C) $(10y + 7)(100y^2 - 70y + 49)$ D) $(10y - 7)(100y^2 + 70y + 49)$

Answer: D

84) $27a^3 - 64b^3$

A) $(3a - 4b)(9a^2 + 16b^2)$ B) $(27a - 4b)(a^2 + 12ab + 16b^2)$

C) $(3a - 4b)(9a^2 + 12ab + 16b^2)$ D) $(3a + 4b^2)(9a^2 - 12ab + 16b^2)$

Answer: C

85) $250k^3m - 16m^4$

A) $2m(5k + 2m^2)(25k^2 - 10km + 4km^2)$ B) $2m(5k - 2m)(25k^2 + 10km + 4m^2)$

C) $2m(125k - 2m)(k^2 + 10km + 4m^2)$ D) $(10km - 4m^2)(25k^2 + 4m^2)$

Answer: B

86) $1{,}000s^3 + 1$

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

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

Answer: D

87) $t^3 + 64$

A) $(t + 4)(t^2 + 16)$ B) $(t - 64)(t^2 - 1)$ C) $(t + 4)(t^2 - 4t + 16)$ D) $(t - 4)(t^2 + 4t + 16)$

Answer: C

88) $343c^3 + 1{,}000$

A) $(7c - 10)(49c^2 + 70c + 100)$ B) $(343c + 10)(c^2 - 70c + 100)$

C) $(7c + 10)(49c^2 - 70c + 100)$ D) $(7c + 10)(49c^2 + 100)$

Answer: C

Write the expression in lowest terms.

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

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

Answer: A

90) $\frac{10k^3}{5k}$

A) 5 B) 2k C) $2k^2$ D) $5k^2$

Answer: C

91) $\frac{(8x - 3)}{-(3 - 8x)}$

A) $\frac{3 - 8x}{-3 + 8x}$ B) $\frac{8x - 3}{-3x + 8}$ C) 1 D) –1

Answer: C

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92) $\frac{(y+7)(y-5)}{(y-5)(y+8)}$

A) $\frac{y-7}{y-8}$ B) $\frac{2y-5}{2y+3}$ C) $\frac{y+5}{y+3}$ D) $\frac{y+7}{y+8}$

Answer: D

93) $\frac{a^2-5a}{(a+6)(a-5)}$

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

Answer: D

94) $\frac{3x+3}{12x^2+21x+9}$

A) $\frac{3x+4}{4x+21}$ B) $\frac{1}{4x+3}$ C) $\frac{3x+3}{12x^2+21x+9}$ D) $\frac{3x}{4x+3}$

Answer: B

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

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

Answer: B

96) $\frac{y^2+5y-24}{y^2+2y-48}$

A) $\frac{y-3}{y-6}$ B) $\frac{5y-24}{2y-48}$ C) $-\frac{y^2+5y-24}{y^2+2y-48}$ D) $\frac{5y-1}{2y-2}$

Answer: A

97) $\frac{a^2-49}{a^2+11a+28}$

A) $\frac{a+7}{a+4}$ B) $\frac{a-7}{a+4}$ C) $\frac{a-7}{a-4}$ D) $\frac{a+7}{a-4}$

Answer: B

98) $\frac{36-k^2}{k^2-11k+30}$

A) $\frac{k+6}{k-5}$ B) $-\frac{k-6}{k-5}$ C) $-\frac{k+6}{k-5}$ D) $-\frac{k+6}{k+5}$

Answer: C

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Perform the indicated operation and simplify.

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

A) $\frac{84x^2}{4x^3}$ B) $\frac{21}{x}$ C) $\frac{21x^2}{x^3}$ D) $\frac{x}{21}$

Answer: B

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

A) $\frac{6p^3 - 6p^2}{8p^2 - 8p}$ B) $\frac{4}{3p}$ C) $\frac{24p^2 + 48p + 24}{2p^3}$ D) $\frac{3p}{4}$

Answer: D

101) $\frac{2x^2}{5} \div \frac{x^3}{40}$

A) $\frac{16}{x}$ B) $\frac{80x^2}{5x^3}$ C) $\frac{16x^2}{x^3}$ D) $\frac{x}{16}$

Answer: A

102) $\frac{4p - 4}{p} \div \frac{8p - 8}{3p^2}$

A) $\frac{12p^3 - 12p^2}{8p^2 - 8p}$ B) $\frac{32p^2 + 64p + 32}{3p^3}$ C) $\frac{3p}{2}$ D) $\frac{2}{3p}$

Answer: C

103) $\frac{k^2 + 8k + 16}{k^2 + 9k + 20} \cdot \frac{k^2 + 5k}{k^2 + 8k + 16}$

A) $\frac{k^2 + 5k}{k + 4}$ B) $\frac{1}{k + 4}$ C) $\frac{k}{k + 4}$ D) $\frac{k}{k^2 + 9k + 20}$

Answer: C

104) $\frac{k^2 + 10k + 24}{k^2 + 15k + 54} \cdot \frac{k^2 + 12k + 27}{k^2 + 7k + 12}$

A) $\frac{k + 4}{k + 9}$ B) $\frac{1}{k + 3}$ 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) $x^2 - y$ B) $x - y$ C) 1 D) $\frac{1}{x + y}$

Answer: C

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106) $\frac{z^2 + 10z + 24}{z^2 + 13z + 36} \div \frac{z^2 + 6z}{z^2 + 12z + 27}$

A) $\frac{z}{z^2 + 13z + 36}$ B) $\frac{z + 3}{z}$ C) $z + 3$ D) $\frac{z + 3}{z^2 + 9z}$

Answer: B

107) $\frac{16x^2 - 9}{x^2 - 64} \div \frac{4x + 3}{x - 8}$

A) $\frac{4x + 3}{x - 8}$ B) $\frac{(4x + 3)(16x^2 - 9)}{(x^2 - 8)(x - 8)}$ C) $\frac{x + 8}{4x - 3}$ D) $\frac{4x - 3}{x + 8}$

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

Answer: B

Perform the indicated operations and simplify.

109) $\frac{2}{13x} + \frac{8}{13x}$

A) $\frac{10}{26x}$ B) $\frac{13x}{10}$ C) $\frac{10}{13x}$ D) 1

Answer: C

110) $\frac{2}{r} + \frac{6}{r - 7}$

A) $\frac{14r - 8}{r(7 - r)}$ B) $\frac{8r - 14}{r(7 - r)}$ C) $\frac{14r - 8}{r(r - 7)}$ D) $\frac{8r - 14}{r(r - 7)}$

Answer: D

111) $\frac{5}{r} + \frac{6}{r + 3}$

A) $\frac{11r + 15}{r(-3 - r)}$ B) $\frac{-15r - 11}{r(-3 - r)}$ C) $\frac{11r + 15}{r(r + 3)}$ D) $\frac{-15r - 11}{r(r + 3)}$

Answer: C

112) $\frac{m - 1}{m^2 + 5m - 24} + \frac{5m - 3}{m^2 - 8m + 15}$

A) $\frac{6m^2 + 31m - 19}{(m + 3)(m - 8)(m + 5)}$ B) $\frac{6m - 4}{2m^2 - 3m - 9}$

C) $6m - 4$ D) $\frac{6m^2 + 31m - 19}{(m - 3)(m + 8)(m - 5)}$

Answer: D

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113) $\frac{2}{y^2 - 3y + 2} + \frac{5}{y^2 - 1}$

A) $\frac{20y - 8}{(y - 1)(y + 1)(y - 2)}$ B) $\frac{7y - 8}{(y - 1)(y - 2)}$ C) $\frac{8y - 7}{(y - 1)(y + 1)(y - 2)}$ D) $\frac{7y - 8}{(y - 1)(y + 1)(y - 2)}$

Answer: D

114) $\frac{x}{x^2 - 16} - \frac{6}{x^2 + 5x + 4}$

A) $\frac{x^2 - 5x + 24}{(x - 4)(x + 4)}$ B) $\frac{x^2 + 5x + 24}{(x - 4)(x + 4)(x + 1)}$ C) $\frac{x^2 - 5}{(x - 4)(x + 4)(x + 1)}$ D) $\frac{x^2 - 5x + 24}{(x - 4)(x + 4)(x + 1)}$

Answer: D

115) $\frac{6}{z^2} - \frac{8}{z}$

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

Answer: D

116) $\frac{2ab}{a^2 - b^2} - \frac{b}{a - b} + \frac{4}{2}$

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

Answer: A

117) $\frac{1}{3m^2 - 8mp - 3p^2} + \frac{1}{18m^2 + 3mp - p^2} - \frac{7}{6m^2 - 19mp + 3p^2}$

A) $\frac{-14m - 11p}{(3m + p)(m - 3p)(6m - p)}$ B) $\frac{-14m + 3p}{(3m + p)(m - 3p)(6m - p)}$

C) $\frac{28m - 11p}{(3m + p)(m - 3p)(6m - p)}$ D) $\frac{28m + 3p}{(3m + p)(m - 3p)(6m - p)}$

Answer: A

118) $\frac{49x}{5(7x + 1)} - \frac{1}{5x(7x + 1)} + \frac{3}{x}$

A) $\frac{7(x + 2)}{35x^2 + 5x}$ B) $\frac{49x^2 + 105x + 14}{35x^2 + 5x}$ C) $\frac{7(x + 2)}{5x}$ D) $\frac{49x^2 + 105x + 14}{5x}$

Answer: C

Solve the equation.

119) $2x + 3 = 5 - 7x$

A) $-\frac{8}{5}$ B) $\frac{2}{9}$ C) $-\frac{2}{5}$ D) $\frac{8}{9}$

Answer: B

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120) $7y - 3 = 27 + y$

A) 5 B) 4 C) 3 D) $\frac{15}{4}$

Answer: A

121) $8x + 6 = 4x - 18$

A) $-\frac{9}{2}$ B) 6 C) -24 D) -6

Answer: D

122) $0.5x - 0.2 = 0.4x + 0.5$

A) 0.3 B) 7 C) 3 D) 0.7

Answer: B

123) $-4.8q + 1.2 = -34.8 - 1.8q$

A) 12 B) -39 C) 7.9 D) 7.5

Answer: A

124) $\frac{p}{4} - \frac{3p}{8} = 2$

A) -14 B) -16 C) 16 D) 14

Answer: B

125) $\frac{7}{10}z - 4z + \frac{1}{5} = \frac{2}{5}$

A) $\frac{2}{3}$ B) $-\frac{2}{33}$ C) $-\frac{2}{11}$ D) $-\frac{1}{33}$

Answer: B

126) $36(x - 144) = 72$

A) 146 B) 72 C) 142 D) 144

Answer: A

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

A) $\frac{1}{6}$ B) $\frac{1}{2}$ C) $-\frac{1}{6}$ D) $-\frac{1}{2}$

Answer: B

128) $6(8x - 1) = 24$

A) $\frac{5}{8}$ B) $\frac{25}{48}$ C) $\frac{3}{8}$ D) $\frac{23}{48}$

Answer: A

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

A) -4 B) -2 C) $-\frac{8}{5}$ D) $-\frac{1}{5}$

Answer: C

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130) $\frac{1}{5}(20x - 25) = \frac{1}{4}(20x - 16)$

A) $\frac{1}{20}$ B) –1 C) –20 D) 1

Answer: B

131) $(y - 7) - (y + 6) = 10y$

A) $-\frac{13}{8}$ B) $-\frac{1}{8}$ C) $-\frac{13}{10}$ D) $-\frac{1}{10}$

Answer: C

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

A) –1 B) –8 C) $\frac{1}{8}$ D) 1

Answer: A

133) $-8b + 5 + 6b = -3b + 10$

A) 5 B) 10 C) –10 D) –5

Answer: A

134) $6[7m - (6m + 3) + 4] = 5m + 7$

A) 6 B) 1 C) $\frac{13}{11}$ D) – 35

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) $4d^2 + 16d + 15 = 0$

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

Answer: D

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

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

Answer: D

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

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

Answer: A

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

A) – 3, 0 B) 3, 0 C) 0 D) 3, – 3

Answer: B

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

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

Answer: D

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

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

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

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

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

Answer: B

141) $5n^2 = -8n - 2$

A) $\frac{-4+\sqrt{6}}{10} \approx -0.155, \frac{-4-\sqrt{6}}{10} \approx -0.645$

B) $\frac{-8+\sqrt{6}}{5} \approx -1.110, \frac{-8-\sqrt{6}}{5} \approx -2.090$

C) $\frac{-4+\sqrt{26}}{5} \approx 0.220, \frac{-4-\sqrt{26}}{5} \approx -1.820$

D) $\frac{-4+\sqrt{6}}{5} \approx -0.310, \frac{-4-\sqrt{6}}{5} \approx -1.290$

Answer: D

142) $2x^2 + 10x = -5$

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

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

C) $\frac{-10+\sqrt{15}}{2} \approx -3.064, \frac{-5-\sqrt{15}}{4} \approx -2.218$

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

Answer: D

143) $x^2 - x = 12$

A) $-3, -4$ B) 3, 4 C) 1, 12 D) $-3, 4$

Answer: D

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

A) $-9, 1$ B) 9, -7 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) $\frac{1}{y+5} - \frac{7}{y-5} = \frac{2}{y^2-25}$

A) 42 B) $\sqrt{30} \approx 5.477$ C) 7 D) -7

Answer: D

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147) $\frac{2}{t} = \frac{t}{-5t - 12}$

A) No solution B) 0, 36 C) –4, –6 D) 0, $\frac{12}{5}$

Answer: C

148) $\frac{12}{x - 4} = 1 + \frac{14}{x + 4}$

A) No solution B) –14, 12 C) –10, 12 D) 10, –12

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

Answer: C

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: A

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

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

Answer: A

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

A) – 1 B) $-\frac{31}{4}$ C) $-\frac{31}{10}$ D) $\frac{31}{4}$

Answer: B

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

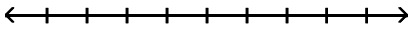
A) 3 B) 6 C) –3 D) No solution

Answer: D

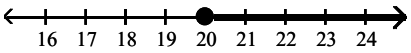
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Write the expression in interval notation. Graph the interval.

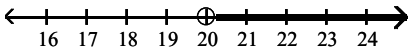
155) $x > 20$



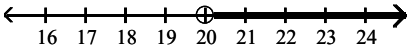
A) $[20, \infty)$



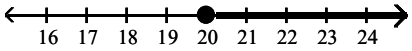
B) $(20, \infty)$



C) $(20, \infty]$

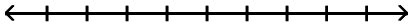


D) $[20, \infty]$

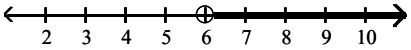


Answer: B

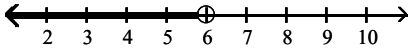
156) $x < 6$



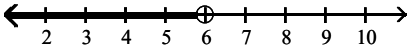
A) $(6, \infty)$



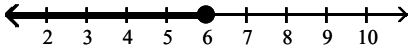
B) $(-\infty, 6)$



C) $[-\infty, 6)$

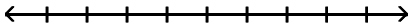


D) $(-\infty, 6]$

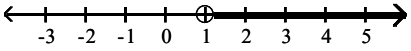


Answer: B

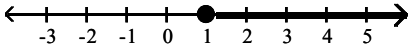
157) $x \geq 1$



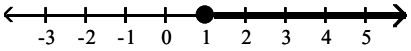
A) $(1, \infty]$



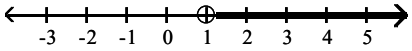
B) $[1, \infty)$



C) $[1, \infty]$

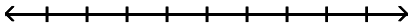


D) $(1, \infty)$

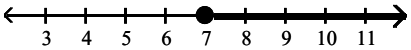


Answer: B

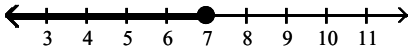
158) $x \leq 7$



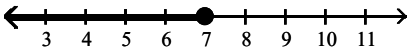
A) $[7, \infty)$



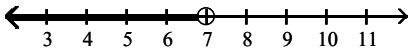
B) $[-\infty, 7]$



C) $(-\infty, 7]$



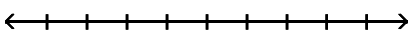
D) $(-\infty, 7)$



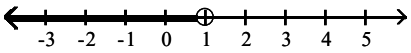
Answer: C

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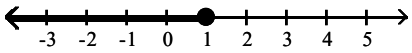
159) $1 \geq x$



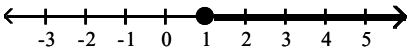
A) $[-\infty, 1)$



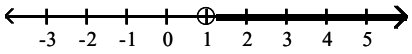
B) $(-\infty, 1]$



C) $[1, \infty)$

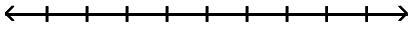


D) $(1, \infty)$

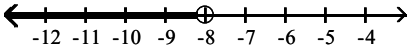


Answer: B

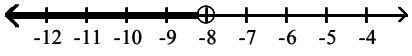
160) $-8 < x$



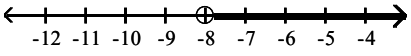
A) $[-\infty, -8)$



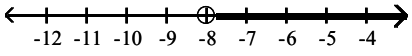
B) $(-\infty, -8)$



C) $(-8, \infty)$

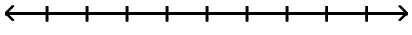


D) $(-8, \infty]$

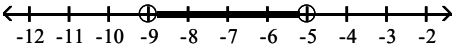


Answer: C

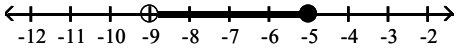
161) $-9 < x < -5$



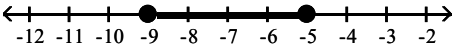
A) $(-9, -5)$



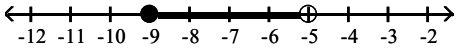
B) $(-9, -5]$



C) $[-9, -5]$

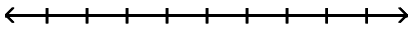


D) $[-9, -5)$

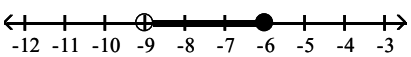


Answer: A

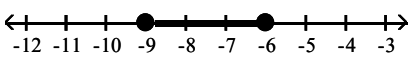
162) $-9 \leq x \leq -6$



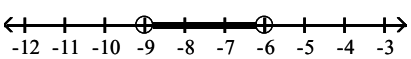
A) $(-9, -6]$



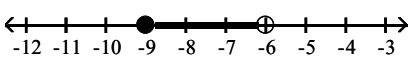
B) $[-9, -6]$



C) $(-9, -6)$



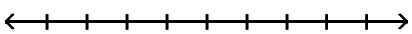
D) $[-9, -6)$



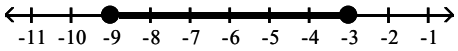
Answer: B

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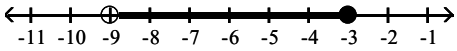
163) $-9 < x \leq -3$



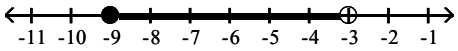
A) $[-9, -3]$



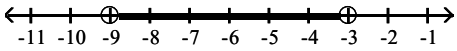
B) $(-9, -3]$



C) $[-9, -3)$



D) $(-9, -3)$



Answer: B

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

164) $(-4, 9]$

A) $-4 \leq x \leq 9$ B) $-4 < x \leq 9$ C) $-4 < x < 9$ D) $x \leq 9$

Answer: B

165) $[-2, 6)$

A) $-2 \leq x \leq 6$ B) $-2 < x \leq 6$ C) $x < 6$ D) $-2 \leq x < 6$

Answer: D

166) $[1, \infty)$

A) $x > 1$ B) $x \leq 1$ C) $x \geq 1$ D) $x < 1$

Answer: C

167) $\left(-\infty, \frac{2}{9}\right]$

A) $x > \frac{2}{9}$ B) $9 \leq x \leq 2$ C) $x < \frac{2}{9}$ D) $x \leq \frac{2}{9}$

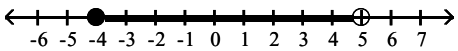
Answer: C

168) $\left(-\infty, \frac{1}{6}\right]$

A) $x > \frac{1}{6}$ B) $6 \leq x \leq 1$ C) $x < \frac{1}{6}$ D) $x \leq \frac{1}{6}$

Answer: D

169)

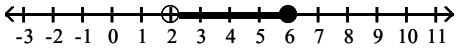


A) $-4 \leq x \leq 5$ B) $-4 \leq x < 5$ C) $-4 < x \leq 5$ D) $-4 < x < 5$

Answer: B

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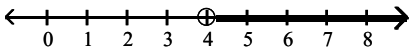
170)



A) $2 < x \leq 6$ B) $2 < x < 6$ C) $2 \leq x \leq 6$ D) $2 \leq x < 6$

Answer: A

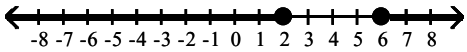
171)



A) $x \leq 4$ B) $x < 4$ C) $x > 4$ D) $x \geq 4$

Answer: C

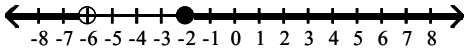
172)



A) $2 \leq x \leq 6$ B) $x < 2$ or $x > 6$ C) $2 < x < 6$ D) $x \leq 2$ or $x \geq 6$

Answer: D

173)

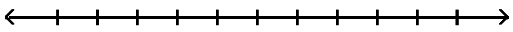


A) $-6 \leq x \leq -2$ B) $-6 < x \leq -2$ C) $x < -6$ or $x \geq -2$ D) $x < -6$ or $x > -2$

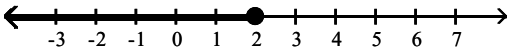
Answer: C

Solve the inequality and graph the solution.

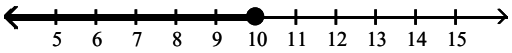
174) $2x - 8 \geq 12$



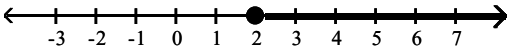
A) $(-\infty, 2]$



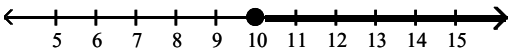
B) $(-\infty, 10]$



C) $[2, \infty)$



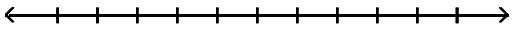
D) $[10, \infty)$



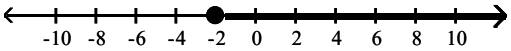
Answer: D

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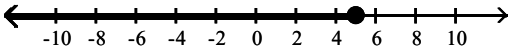
175) $9x - 9 \leq 4x - 11$



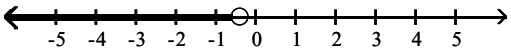
A) $[-2, \infty)$



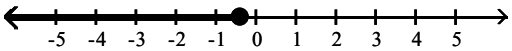
B) $(-\infty, 5]$



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

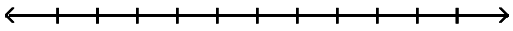


D) $\left(-\infty, -\frac{2}{5}\right]$

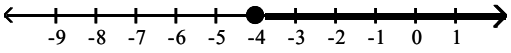


Answer: D

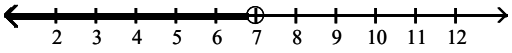
176) $-12 + 7t + 1 \geq 6t - 15$



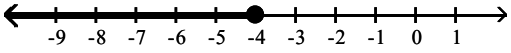
A) $[-4, \infty)$



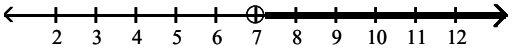
B) $(-\infty, 7)$



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

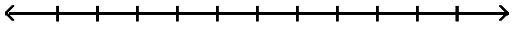


D) $(7, \infty)$

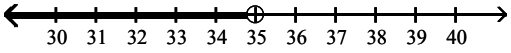


Answer: A

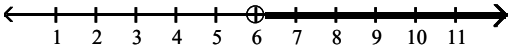
177) $35a + 35 > 5(6a + 13)$



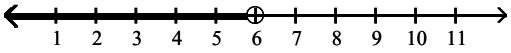
A) $(-\infty, 35)$



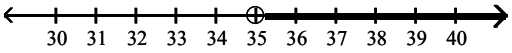
B) $(6, \infty)$



C) $(-\infty, 6)$

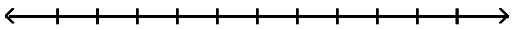


D) $(35, \infty)$

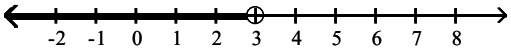


Answer: B

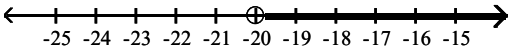
178) $-5(3x + 6) < -20x - 15$



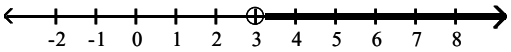
A) $(-\infty, 3)$



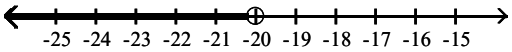
B) $(-20, \infty)$



C) $(3, \infty)$



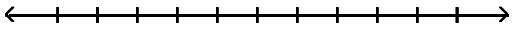
D) $(-\infty, -20)$



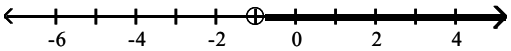
Answer: A

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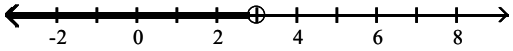
179) $m - 3(m - 7) < 5m$



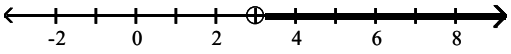
A) $(-1, \infty)$



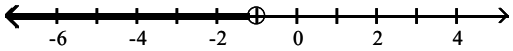
B) $(-\infty, 3)$



C) $(3, \infty)$

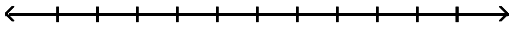


D) $(-\infty, -1)$

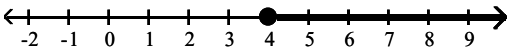


Answer: C

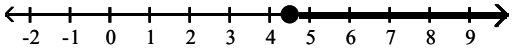
180) $21 - (2x + 3) \leq 2(x - 5) + 3x$



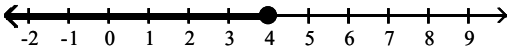
A) $[4, \infty)$



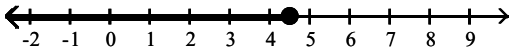
B) $\left[\frac{34}{7}, \infty\right)$



C) $(-\infty, 4]$

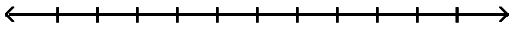


D) $\left(-\infty, \frac{34}{7}\right]$

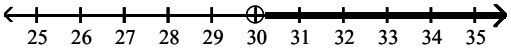


Answer: A

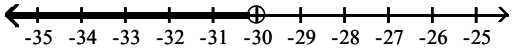
181) $-2(x + 5) + 15x < -5(-3x + 8) - 3x$



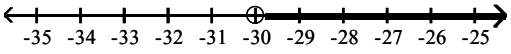
A) $(30, \infty)$



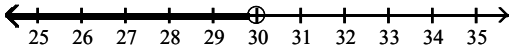
B) $(-\infty, -30)$



C) $(-30, \infty)$



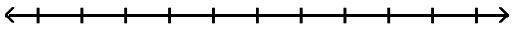
D) $(-\infty, 30)$



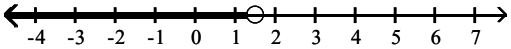
Answer: B

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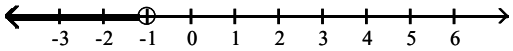
182) $\frac{1}{2}(x + 3) > \frac{1}{6}(7x + 3)$



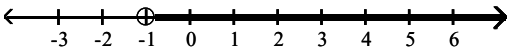
A) $\left(-\infty, \frac{3}{2}\right)$



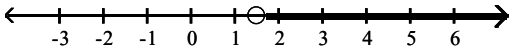
B) $(-\infty, -1)$



C) $(-1, \infty)$

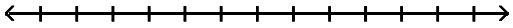


D) $\left(\frac{3}{2}, \infty\right)$

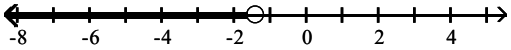


Answer: A

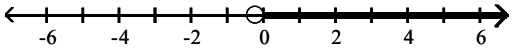
183) $\frac{2}{3}(4 + 5k) > \frac{1}{2}(5k + 3)$



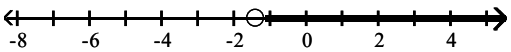
A) $\left(-\infty, -\frac{7}{5}\right)$



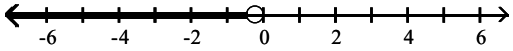
B) $\left(-\frac{1}{5}, \infty\right)$



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



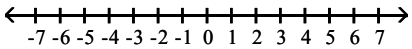
D) $\left(-\infty, -\frac{1}{5}\right)$



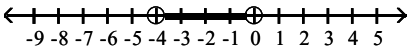
Answer: C

Solve the inequality, then graph the solution.

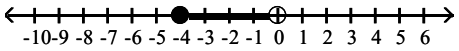
184) $0 < -4y \leq 16$



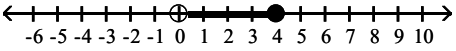
A) $(-4, 0)$



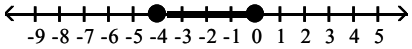
B) $[-4, 0)$



C) $(0, 4]$



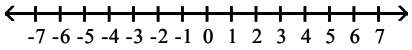
D) $[-4, 0]$



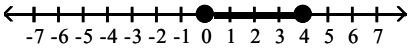
Answer: B

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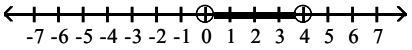
185) $2 < 5y + 2 \leq 22$



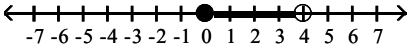
A) [0, 4]



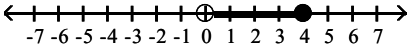
B) (0, 4)



C) [0, 4)

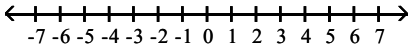


D) (0, 4]

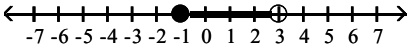


Answer: D

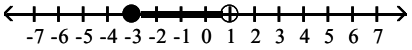
186) $-1 < -3a + 2 \leq 11$



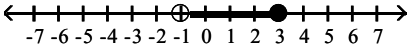
A) [–1, 3)



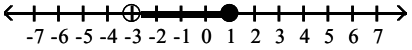
B) [–3, 1)



C) (–1, 3]

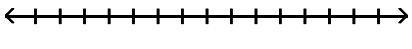


D) (–3, 1]

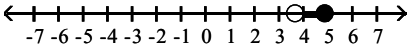


Answer: B

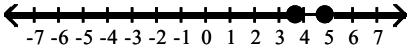
187) $10 < \dfrac{10x - 7}{3} < 14$



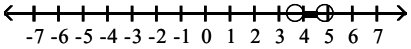
A) $\left(-\dfrac{49}{10}, \dfrac{37}{10}\right)$



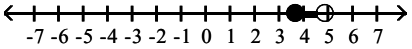
B) $\left(-\infty, \dfrac{37}{10}\right) \cup \left(\dfrac{49}{10}, \infty\right)$



C) $\left(\dfrac{37}{10}, \dfrac{49}{10}\right)$



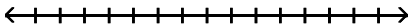
D) $\left(-\dfrac{37}{10}, \dfrac{49}{10}\right)$



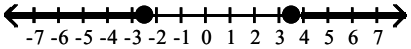
Answer: C

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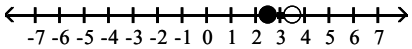
188) $-8 < \frac{4 - 8x}{3} \leq 8$



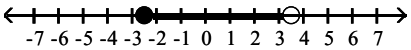
A) $\left(-\infty, -\frac{5}{2}\right] \cup \left[\frac{7}{2}, \infty\right)$



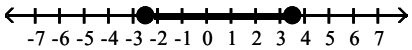
B) $\left[\frac{5}{2}, \frac{7}{2}\right)$



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



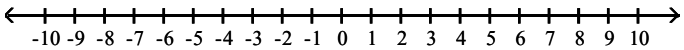
D) $\left[-\frac{5}{2}, \frac{7}{2}\right]$



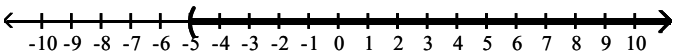
Answer: C

Solve the quadratic inequality. Graph the solution.

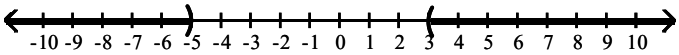
189) $(x - 3)(x + 5) > 0$



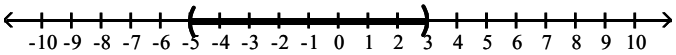
A) $(-5, \infty)$



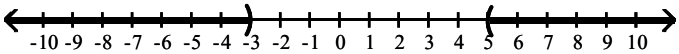
B) $(-\infty, -5) \cup (3, \infty)$



C) $(-5, 3)$



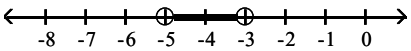
D) $(-\infty, -3) \cup (5, \infty)$



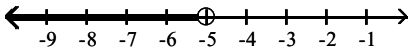
Answer: B

190) $p^2 + 8p + 15 > 0$

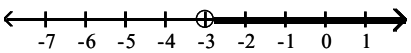
A) $(-5, -3)$



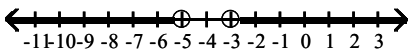
B) $(-\infty, -5)$



C) $(-3, \infty)$



D) $(-\infty, -5) \cup (-3, \infty)$

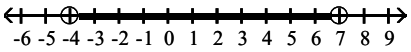


Answer: D

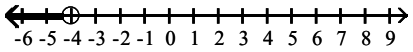
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191) $s^2 - 3s - 28 < 0$

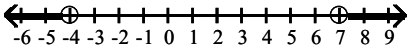
A) $(-4, 7)$



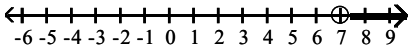
B) $(-\infty, -4)$



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



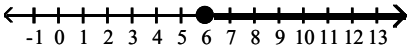
D) $(7, \infty)$



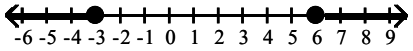
Answer: A

192) $t^2 - 3t - 18 \leq 0$

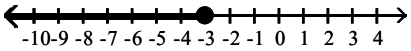
A) $[6, \infty)$



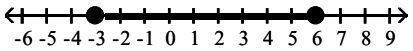
B) $(-\infty, -3] \cup [6, \infty)$



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



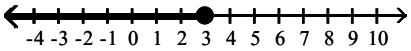
D) $[-3, 6]$



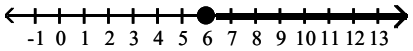
Answer: D

193) $v^2 - 9v + 18 \geq 0$

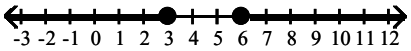
A) $(-\infty, 3]$



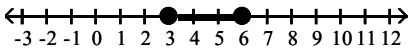
B) $[6, \infty)$



C) $(-\infty, 3] \cup [6, \infty)$



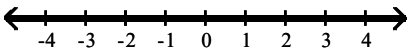
D) $[3, 6]$



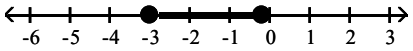
Answer: C

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

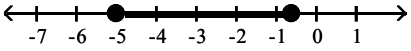
A) $(-\infty, \infty)$



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



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



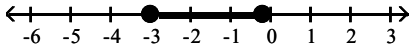
D) no solution

Answer: A

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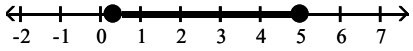
195) $-3x^2 + 7x - 5 \le 0$

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

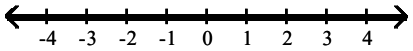


B) no solution

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



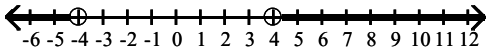
D) $(-\infty,\infty)$



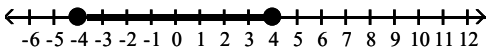
Answer: D

196) $x^2 \ge 16$

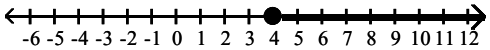
A) $(-\infty, -4) \cup (4, \infty)$



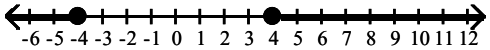
B) $[-4, 4]$



C) $[4, \infty)$



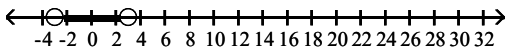
D) $(-\infty, -4] \cup [4, \infty)$



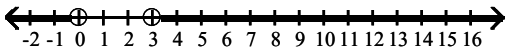
Answer: D

197) $y^2 - 3y < 0$

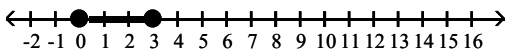
A) $(-3, 3)$



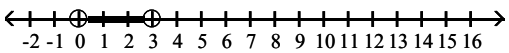
B) $(-\infty, 0) \cup (3, \infty)$



C) $[0, 3]$



D) $(0, 3)$



Answer: D

Solve the inequality.

198) $\frac{-7}{-3x - 5} > 0$

A) $(0, \infty)$ B) $\left(-\infty, -\frac{3}{5}\right)$ C) $\left(-\infty, \frac{5}{3}\right)$ D) $\left(-\frac{5}{3}, \infty\right)$

Answer: D

199) $\frac{x + 24}{x + 9} < 4$

A) $(-\infty, -9) \cup (-4, \infty)$ B) $(-\infty, -4) \cup (9, \infty)$ C) $(-4, 9)$ D) $(-9, -4)$

Answer: A

200) $\frac{6}{x + 9} > \frac{1}{7}$

A) no solution B) $(-\infty, -9) \cup (33, \infty)$ C) $(-33, 9)$ D) $(-9, 33)$

Answer: D

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201) $\frac{4}{(x+3)^2} < 0$

A) $(1, \infty)$ B) $(-1, \infty)$ C) no solution D) $(-\infty, \infty)$

Answer: C

202) $\frac{7}{x+7} > \frac{2}{x+7}$

A) $(-7, \infty)$ B) no solution C) $(-\infty, \infty)$ D) $(-\infty, -7)$

Answer: A

203) $\frac{2x+9}{x-4} \geq 1$

A) $[-13, \infty)$ B) $(-\infty, -13] \cup (4, \infty)$ C) $(-\infty, -13] \cup [4, \infty)$ D) $[-13, 4)$

Answer: B

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

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

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

Answer: A

Evaluate the expression. Write your answer without exponents.

205) 3^{-4}

A) 81 B) -81 C) $\frac{1}{81}$ D) $\frac{1}{-81}$

Answer: C

206) $\frac{1}{2^{-3}}$

A) 8 B) 16 C) 6 D) 4

Answer: A

207) $\frac{5^{-2}}{2^{-3}}$

A) $\frac{25}{8}$ B) $\frac{125}{16}$ C) $\frac{8}{25}$ D) $\frac{16}{125}$

Answer: C

208) $\frac{1}{-10^{-2}}$

A) -100 B) -10 C) 10 D) 100

Answer: A

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

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

Answer: B

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

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

Answer: A

211) $-(-5^{-2})$

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

Answer: A

212) 5^0

A) 0 B) -1 C) 5 D) 1

Answer: D

213) $(-5)^0$

A) 0 B) -1 C) -5 D) 1

Answer: D

214) $\left(\frac{1}{2}\right)^{-2}$

A) $\frac{1}{4}$ B) 2 C) 1 D) 4

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) $\frac{8^7 m \cdot 8^{-2} m}{8^{-9} m}$

A) $\frac{m}{8^{14}}$ B) $8^{14} m$ C) $8^{-4} m$ D) $\frac{m}{8^{-4}}$

Answer: B

216) $\frac{5^{-8} p \cdot 5^{-5} p}{5^7 p^3}$

A) $\frac{1}{5^{20} p}$ B) $\frac{5^6}{p}$ C) $\frac{1}{5^6 p}$ D) $5^{20} p$

Answer: A

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217) $\frac{243^7 \cdot 3^{-3}}{9^7}$

A) 27^{18} B) 1 C) 3^7 D) 3^{18}

Answer: D

218) $\frac{(5x)^{12}}{x^{12}}$

A) $\frac{1}{5}$ B) $\frac{5}{x}$ C) 5^{12} D) 5

Answer: C

219) $\frac{x^{-8}}{(6x)^{-8}}$

A) 6^8 B) 6x C) $\frac{1}{6^8}$ D) 6

Answer: A

220) $\frac{x^2(x^{-9})^{-9}}{(x^{-5})^{-5}}$

A) x^{104} B) x^{58} C) $\frac{1}{x^{104}}$ D) x^{26}

Answer: B

221) $\frac{x^{-2}(x^{-8})^4}{(x^{-5})^{-6}}$

A) $\frac{1}{x^{64}}$ B) $\frac{1}{x^4}$ C) x^{64} D) x^5

Answer: A

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

A) $\frac{y^{14}}{x^8}$ B) $\frac{1}{x^8y^{14}}$ C) $\frac{x^8}{y^{14}}$ D) $\frac{x^8}{y^{12}}$

Answer: C

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

A) $\frac{y^2}{x^{14}}$ B) $\frac{y^2}{x^7}$ C) $\frac{x^7}{y^4}$ D) $\frac{1}{x^7y^2}$

Answer: B

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

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

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

Answer: A

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

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

Answer: C

226) $(2k)^{-1}+3m^{-1}$

A) $\dfrac{m+6k}{2km}$ B) $\dfrac{m+6k}{3m}$ C) $\dfrac{m+6k}{2k}$ D) $\dfrac{m-6k}{3km}$

Answer: A

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

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

Answer: B

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

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

Answer: C

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

A) $\dfrac{5}{3}$ B) $\dfrac{-4b-6a}{-6}$ C) $24b+36a$ D) $36b+24a$

Answer: C

230) $\dfrac{-6xy^{-1}+9yx^{-1}}{-6x^2+9y^2}$

A) $\dfrac{1}{-54xy}$ B) $\dfrac{1}{xy}$ C) 1 D) xy

Answer: B

231) $(2a^{-1}-7b^{-1})^{-1}$

A) $\dfrac{-7a+2b}{ab}$ B) $\dfrac{-14ab}{-7a+2b}$ C) $\dfrac{ab}{-7b+2a}$ D) $\dfrac{ab}{2b-7a}$

Answer: D

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

A) $\dfrac{7}{4m^{-1} - 25n^{-1}}$

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

C) $\dfrac{100m^2n^2}{(2n + 5m)(2n - 5m)^2}$

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

Answer: D

233) $\left(\dfrac{x}{2}\right)^{-3} + \left(\dfrac{y}{5}\right)^{-1}$

A) $\dfrac{40 + x^3y}{8y}$ B) $\dfrac{8y + 5x^3}{40}$ C) $\dfrac{8y + 5x}{xy}$ D) $\dfrac{8y + 5x^3}{x^3y}$

Answer: D

Evaluate the expression.

234) $576^{1/2}$

A) 24 B) 12 C) 48 D) 96

Answer: A

235) $8^{1/3}$

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

Answer: A

236) $4{,}096^{1/4}$

A) 256 B) 8 C) 32 D) 32,768

Answer: B

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

A) −2 B) −8 C) 16 D) 32

Answer: A

238) $\left(\dfrac{49}{81}\right)^{1/2}$

A) $\dfrac{7}{10}$ B) $\dfrac{6}{9}$ C) $\dfrac{6}{10}$ D) $\dfrac{7}{9}$

Answer: D

239) $27^{4/3}$

A) 729 B) 81 C) 243 D) 2,187

Answer: B

240) $16^{5/4}$

A) 256 B) 512 C) 32 D) 128

Answer: C

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241) $32^{4/5}$

A) 512 B) 256 C) 128 D) 16

Answer: D

242) $8^{-2/3}$

A) $\frac{1}{2}$ B) -4 C) $-\frac{1}{4}$ D) $\frac{1}{4}$

Answer: D

243) $\left(\frac{27}{64}\right)^{-2/3}$

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

Answer: A

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

244) $7a^{3/4} \cdot 7a^{-23/4}$

A) $\frac{7}{a^6}$ B) $\frac{a^5}{49}$ C) $7a^{-20}$ D) $\frac{49}{a^5}$

Answer: D

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

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

Answer: C

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

A) $\frac{5^4}{x^3}$ B) $5^4\ x^6$ C) $\frac{5^6}{x^7}$ D) $5\,x^7$

Answer: A

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

A) $-3k^{13}$ B) $\frac{1}{6\,k^{11/2}}$ C) $-\frac{1}{6k^{12}}$ D) $\frac{3}{k^{15/2}}$

Answer: B

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248) $\frac{2^{1/5}m^{-1}}{2^{-7/5}m^{-4}}$

A) $2^{8/5}m^3$ B) $\frac{2^{8/5}}{m^3}$ C) $4^{8/25}m^4$ D) $-2^{6/5}m^3$

Answer: A

249) $\frac{-5b^{-2}b^{1/4}}{b^{-7}}$

A) $\frac{b^{21/4}}{5}$ B) $-5b^{21/4}$ C) $-5b^{23/4}$ D) $\frac{-5}{b^{21/4}}$

Answer: B

250) $\frac{2^{1/5}x^{-8}}{2^{-9}x^{-9}}$

A) $2^{44/5}x$ B) $\frac{2^{48/5}}{x}$ C) $2^{46/5}x$ D) $\frac{x}{2^9}$

Answer: C

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

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

Answer: C

252) $\frac{m^{-2/3}n^{-2/5}p^{29/8}}{m^{7/3}n^{13/5}p^{-3/8}}$

A) $\frac{p^7}{m^{11/3}n^3}$ B) $\frac{p^4}{m^{8/3}n^3}$ C) $\frac{m^3}{n^3p^4}$ D) $\frac{p^4}{m^3n^3}$

Answer: D

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

A) $\frac{m^{7/9}\cdot n^{1/7}}{k^{8/5}}$ B) $\frac{m^{7/9}\cdot n^{5/7}}{k^{8/5}}$ C) $\frac{m^{7/9}\cdot n^{5/7}}{k^{6/5}}$ D) $\frac{n^{5/7}}{k^{6/5}\cdot m^{7/9}}$

Answer: B

Factor the expression.

254) $(y-7)(m-2)+(y-7)(m-5)$

A) $(y-7)(m-7)$ B) $(y-7)(m+7)$ C) $(y-7)(m^2-7)$ D) $(y-7)(2m-7)$

Answer: D

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255) $(8q + 11)(6q + 8) + (8q + 11)(q - 8)$

A) $(16q + 22)(7q)$ B) $(8q + 11)(7q + 16)$ C) $(8q + 11)(7q - 16)$ D) $(8q + 11)(7q)$

Answer: D

256) $3(x + y)^3 - 6(x + y)^2 + 9(x + y)^4$

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

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

Answer: B

257) $20(p + 3)^2 + 17(p + 3) + 3$

A) $(5p + 16)(4p + 15)$ B) $(5p + 6)(4p + 4)$ C) $(5p + 3)(4p + 1)$ D) $(5p + 18)(4p + 13)$

Answer: D

258) $8(m - 4)^2 - 6(m - 4) - 5$

A) $(4m + 5)(2m + 1)$ B) $(4m + 9)(2m + 5)$ C) $(4m + 17)(2m + 13)$ D) $(4m - 21)(2m - 7)$

Answer: D

259) $a^2(a + b)^2 - ab(a + b)^2 - 12b^2(a + b)^2$

A) $(a + b)^2(a - 3b)(a + 4b)$ B) $(a + b)^2(a - 4b)(a + 3b)$

C) $(a - 4b)(a + 3b)(a + b)$ D) $(a + b)^2(a - 4)(a + 3)$

Answer: B

260) $8x^2(x^2 + 2)^2 - 4x(5x^3 + 1)(x^2 + 2)$

A) $4x(x^2 + 2)(-5x^3 + 2x^2 + 3)$ B) $4x(x^2 + 2)(-3x^3 + 4x - 1)$

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

Answer: B

261) $9m^{1/2} + 3m^{-1/2}$

A) $m^{-1/2}(9m - 3)$ B) $m^{1/2}(9m + 3)$ C) $m^{-1/2}(9m^{1/2} + 3)$ D) $m^{-1/2}(9m + 3)$

Answer: D

262) $x(2x + 5)^2(x^2 - 6)^{-1/2} + 4(x^2 - 6)^{1/2}(2x + 5)$

A) $(2x + 5)(x^2 - 6)^{1/2}(6x^2 + 5x - 24)$ B) $(2x + 5)(x^2 - 6)^{-1/2}(4x^2 + 2x - 19)$

C) $(2x + 5)(x^2 - 6)^{-1/2}(6x^2 + 5x - 24)$ D) $(2x + 5)^2(x^2 - 6)^{-1/2}(4x^2 + x - 24)$

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) $(x - 7)^{-3/2}(x^2 - 15x + 57)$ D) $(x - 7)^{-3/2}(x^2 - 15x - 50)$

Answer: C

Simplify. Assume that all variables represent positive real numbers.

264) $\sqrt{96}$

A) $16\sqrt{6}$ B) 9 C) $4\sqrt{6}$ D) 4

Answer: C

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265) $-\sqrt{125}$

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

Answer: B

266) $\sqrt[3]{135}$

A) $5\sqrt[3]{3}$ B) $3\sqrt[3]{5}$ C) 5 D) 11

Answer: B

267) $\sqrt[4]{2{,}592}$

A) $2\sqrt[4]{6}$ B) 50 C) $6\sqrt[4]{2}$ D) 7

Answer: C

268) $-\sqrt[4]{1{,}280}$

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

Answer: B

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

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

Answer: C

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

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

Answer: B

271) $\sqrt{48k^7q^8}$

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

Answer: A

272) $\sqrt[3]{1{,}000x^4y^5}$

A) $10xy(\sqrt[2]{xy^2})$ B) $10xy(\sqrt[3]{xy^2})$ C) $3xy(\sqrt[3]{xy^2})$ D) $10xy(\sqrt[3]{xy})$

Answer: B

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

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

Answer: D

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

274) $\sqrt{12} \cdot \sqrt{12}$

A) 144 B) $\sqrt{144}$ C) 12 D) 24

Answer: C

275) $\sqrt{2} \cdot \sqrt{18}$

A) 12 B) 36 C) 6 D) 72

Answer: C

276) $\sqrt{28} \cdot \sqrt{7}$

A) $2\sqrt{7}$ B) $7\sqrt{2}$ C) 196 D) 14

Answer: D

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

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

Answer: D

278) $\sqrt{15} \cdot \sqrt{75}$

A) $25\sqrt{3}$ B) $-25\sqrt{3}$ C) $-15\sqrt{5}$ D) $15\sqrt{5}$

Answer: D

279) $\sqrt{11x^3} \cdot \sqrt{11x^5}$

A) $\sqrt{11x^4}$ B) $11x^4$ C) $\sqrt{121x^8}$ D) $x^4\sqrt{22}$

Answer: B

280) $\sqrt[7]{u} \cdot \sqrt{u}$

A) $\sqrt[14]{u^9}$ B) $\sqrt[7]{u^2}$ C) $\sqrt[9]{u^2}$ D) $\sqrt[9]{2u}$

Answer: A

281) $\sqrt[7]{x} \cdot \sqrt[4]{x^3}$

A) $\sqrt[11]{x^4}$ B) $\sqrt[28]{x^{25}}$ C) $\sqrt[28]{x^4}$ D) $\sqrt[11]{x^3}$

Answer: B

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

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

Answer: D

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

283) $-8\sqrt{98} + 4\sqrt{18} - 5\sqrt{32}$

A) $-64\sqrt{2}$ B) $416\sqrt{2}$ C) $-8\sqrt{2}$ D) $-416\sqrt{2}$

Answer: A

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284) $\sqrt{18} - 6\sqrt{32} - 4\sqrt{8}$

A) $29\sqrt{2}$ B) $-32\sqrt{2}$ C) $22\sqrt{2}$ D) $-29\sqrt{2}$

Answer: D

285) $\sqrt{6} + 5\sqrt{24} - 4\sqrt{54}$

A) $-1\sqrt{6}$ B) $1\sqrt{84}$ C) $1\sqrt{6}$ D) $-1\sqrt{84}$

Answer: A

286) $\sqrt{3a} - 3\sqrt{12a} - 6\sqrt{27a}$

A) $-23\sqrt{3a}$ B) $-9\sqrt{3a}$ C) $-9\sqrt{42a}$ D) $-23\sqrt{42a}$

Answer: A

287) $\sqrt{5x^2} + 4\sqrt{125x^2} + 7\sqrt{125x^2}$

A) $11x\sqrt{186}$ B) $11x\sqrt{5}$ C) $56x\sqrt{5}$ D) $56x\sqrt{186}$

Answer: C

288) $\sqrt{2} - 4\sqrt{128} - 5\sqrt{98}$

A) $3\sqrt{2}$ B) $-66\sqrt{2}$ C) $66\sqrt{2}$ D) $-3\sqrt{2}$

Answer: B

289) $6\sqrt[3]{3} + 14\sqrt[3]{3}$

A) $8\sqrt[3]{3}$ B) $20\sqrt[3]{3}$ C) $20\sqrt[3]{6}$ D) $20\sqrt[3]{9}$

Answer: B

290) $9\sqrt[3]{2} - 4\sqrt[3]{128}$

A) $5\sqrt[3]{2}$ B) $7\sqrt[3]{2}$ C) $-7\sqrt[3]{2}$ D) $9\sqrt[3]{2} - 4\sqrt[3]{128}$

Answer: C

291) $11\sqrt[4]{x^7} - 5x\sqrt[4]{x^3}$

A) $11\sqrt[4]{x^7} - 5x\sqrt[4]{x^3}$ B) $16\sqrt[4]{x^3}$ C) $6x\sqrt[4]{x^7}$ D) $6x\sqrt[4]{x^3}$

Answer: D

292) $3\sqrt[3]{a} + \sqrt[3]{64a}$

A) $4\sqrt[3]{64a}$ B) $12\sqrt[3]{a}$ C) $3\sqrt[3]{a} + \sqrt[3]{64a}$ D) $7\sqrt[3]{a}$

Answer: D

Simplify the root, if possible.

293) $\sqrt{9x^2 + 24x + 16}$

A) cannot be simplified B) $(3x + 4)^2$

C) $|3x + 4|$ D) $3x + 4$

Answer: C

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294) $\sqrt{4m^2 + 49n^2}$

A) $2m + 7n$ B) $|2m + 7n|$

C) cannot be simplified D) $(2m + 7n)^2$

Answer: C

295) $\sqrt{z^2 + 2z + 1}$

A) $|z + 1|$ B) $|z| + 1$ C) $z + 1$ D) $-z - 1$

Answer: A

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

296) $-\sqrt{\frac{25}{24}}$

A) $-5\sqrt{6}$ B) $-\frac{5\sqrt{6}}{12}$ C) $-\frac{5\sqrt{6}}{6}$ D) -24

Answer: B

297) $\frac{5}{9 - \sqrt{5}}$

A) $\frac{5}{9} - \frac{5}{\sqrt{5}}$ B) $\frac{45 + 5\sqrt{5}}{76}$ C) $\frac{45 + 5\sqrt{5}}{-4}$ D) $\frac{45 - 5\sqrt{5}}{76}$

Answer: B

298) $\frac{\sqrt{7}}{\sqrt{2} + 5}$

A) $\frac{\sqrt{14} - 5\sqrt{7}}{-23}$ B) $\frac{\sqrt{14} + 5\sqrt{7}}{-23}$ C) $\frac{3\sqrt{14} + 27}{10}$ D) $\frac{\sqrt{14} - 5\sqrt{7}}{7}$

Answer: A

299) $\frac{1 - \sqrt{10}}{1 + \sqrt{10}}$

A) $\frac{11 - 2\sqrt{10}}{-9}$ B) $\frac{-9 - 2\sqrt{10}}{11}$ C) 1 D) $\frac{11 + 2\sqrt{10}}{-9}$

Answer: A

300) $\frac{\sqrt{7}}{7\sqrt{5} - \sqrt{7}}$

A) $\frac{1}{34}(\sqrt{35} + 1)$ B) $\frac{1}{34}(\sqrt{5} + 1)$ C) $\frac{1}{34}(\sqrt{35} - 1)$ D) $\frac{1}{36}(\sqrt{35} + 1)$

Answer: A

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

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

Answer: C

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302) $\frac{4\sqrt{x}+1}{3\sqrt{x}-5}$

A) $\frac{12x+23\sqrt{x}+5}{9x-25}$ B) $\frac{4x+23\sqrt{x}+5}{9x-25}$ C) $\frac{16x+1}{9x-25}$ D) $\frac{12x-5}{9x-25}$

Answer: A

303) $\frac{4x}{\sqrt{5x-7}}$

A) $\frac{4x\sqrt{5x-7}}{5x-7}$ B) $\frac{4x\sqrt{5x-7}}{5x+7}$ C) $\frac{16x^2}{5x-7}$ D) $\frac{16x^2\sqrt{5x+7}}{5x+7}$

Answer: A

304) $\frac{-7}{\sqrt{3}}$

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

Answer: D

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

Answer: A

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

306) $\frac{\sqrt{5}+2}{2}$

A) $\frac{2}{2\sqrt{5}-1}$ B) $\frac{5}{\sqrt{5}-1}$ C) $\frac{-5}{\sqrt{5}}$ D) $\frac{1}{2\sqrt{5}-4}$

Answer: D

307) $\frac{8-\sqrt{3}}{10-\sqrt{10}}$

A) $\frac{61}{80+10\sqrt{3}-8\sqrt{10}-\sqrt{30}}$ B) $\frac{61}{80+10\sqrt{3}-8\sqrt{10}-30}$

C) $\frac{61}{80-10\sqrt{3}-8\sqrt{10}-\sqrt{30}}$ D) $\frac{61}{80+2\sqrt{-7}-30}$

Answer: A

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308) $\dfrac{8+\sqrt{6}}{4+\sqrt{7}}$

A) $\dfrac{58}{32-12\sqrt{13}-42}$

B) $\dfrac{58}{32+4\sqrt{6}-8\sqrt{7}-\sqrt{42}}$

C) $\dfrac{58}{32-4\sqrt{6}+8\sqrt{7}-\sqrt{42}}$

D) $\dfrac{58}{32-4\sqrt{6}-8\sqrt{7}-42}$

Answer: C

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

A) $-\dfrac{y}{8\sqrt{x}-8\sqrt{y}}$

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

C) $\dfrac{x-y}{8x\sqrt{x}-8x\sqrt{y}}$

D) $\dfrac{8x-8y}{x\sqrt{x}-x\sqrt{y}}$

Answer: C

310) $\dfrac{\sqrt{m}-\sqrt{n}}{5+\sqrt{n}}$

A) $\dfrac{m-n}{5\sqrt{m}+5\sqrt{n}+\sqrt{mn}+n}$

B) $\dfrac{m-n}{5\sqrt{m}+n}$

C) $\dfrac{m+n}{5\sqrt{m}-5\sqrt{n}-\sqrt{mn}-n}$

D) $\dfrac{m-1}{5\sqrt{m}+5\sqrt{n}+\sqrt{mn}}$

Answer: A

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Answer Key
Testname: UNTITLED1

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

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51) D
52) B
53) C
54) C
55) B
56) B
57) B
58) B
59) D
60) B
61) C
62) B
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64) D
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71) D
72) C
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91) C
92) D
93) D
94) B
95) B
96) A
97) B
98) C
99) B
100) D

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101) A
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118) C
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129) C
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142) D
143) D
144) C
145) D
146) D
147) C
148) D
149) D
150) C

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151) A
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154) D
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197) D
198) D
199) A
200) D

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201) C
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217) D
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227) B
228) C
229) C
230) B
231) D
232) D
233) D
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236) B
237) A
238) D
239) B
240) C
241) D
242) D
243) A
244) D
245) C
246) A
247) B
248) A
249) B
250) C

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251) C
252) D
253) B
254) D
255) D
256) B
257) D
258) D
259) B
260) B
261) D
262) C
263) C
264) C
265) B
266) B
267) C
268) B
269) C
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272) B
273) D
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291) D
292) D
293) C
294) C
295) A
296) B
297) B
298) A
299) A
300) A

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

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