Wallace Community College
Compass Placement Practice Exam
Algebra

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

Provide an appropriate response.

1) Evaluate $x - y + 4z$ if $x = 2$, $y = 0$, and $z = -5$ 1) _____
A) -18 B) 7 C) -3 D) 22

2) Combine: $8x + 9 - 2(-8x - 9)$ 2) _____
A) $-24x - 27$ B) $-16x - 18$ C) $24x + 27$ D) $16x + 18$

Solve.

3) $\frac{n}{3} = -11$ 3) _____
A) $n = -33$ B) $n = 33$ C) $n = -14$ D) $n = -\frac{1}{33}$

4) $\frac{3y}{5} = 12$ 4) _____
A) $y = 20$ B) $y = 4$ C) $y = \frac{1}{20}$ D) $y = \frac{36}{5}$

5) $2r + 3 = 15$ 5) _____
A) $r = 6$ B) $r = 4$ C) $r = 14$ D) $r = 10$

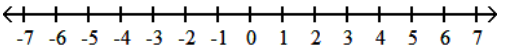
6) $-a + 4 = 7$ 6) _____
A) $a = 3$ B) $a = -3$ C) $a = -11$ D) $a = 11$

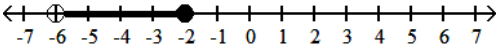
7) $15x = -3(x - 12)$ 7) _____
A) $x = -\frac{1}{2}$ B) $x = 2$ C) $x = -2$ D) $x = \frac{1}{2}$

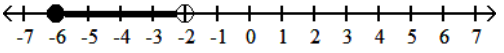
8) $2a - 7 - 5(a + 1) = -(-4a + 7)$ 8) _____
A) $a = -\frac{5}{7}$ B) $a = -\frac{19}{7}$ C) $a = \frac{5}{2}$ D) $a = \frac{19}{2}$

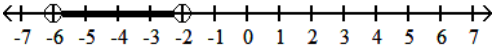
Draw the graph of the inequality.

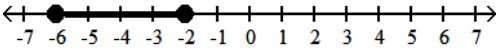
9) $-6 \le x < -2$ 9) _____



A) 

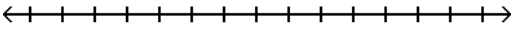
B) 

C) 

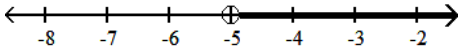
D) 

Solve the inequality and graph.

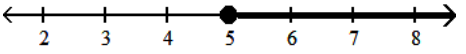
10) $-7x \ge 35$ 10) _____



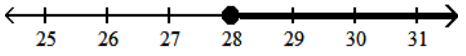
A) $x \ge -5$



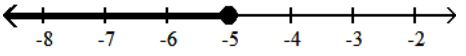
B) $x \ge 5$



C) $x \ge 28$



D) $x \le -5$



Solve the problem.

11) A car rental business rents a compact car at a daily rate of $39.20 plus 20 cents per mile. Mike can afford to spend $55 on the car rental for one day. How many miles can he drive and stay within his budget? 11) _____

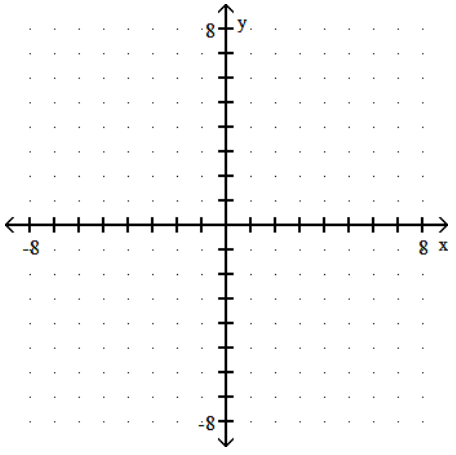
A) 79 mi B) 84 mi C) 74 mi D) 69 mi

12) Matthew has $1600 invested in the stock market. This amounts to 40% of his total savings. How much does Matthew have in savings in total? 12) _____

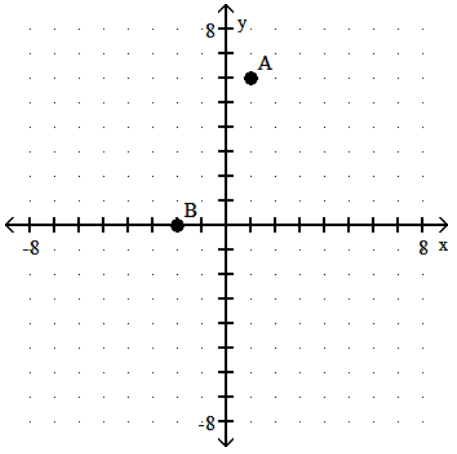
A) $4000 B) $40,000 C) $4010 D) $4100

Provide an appropriate response.

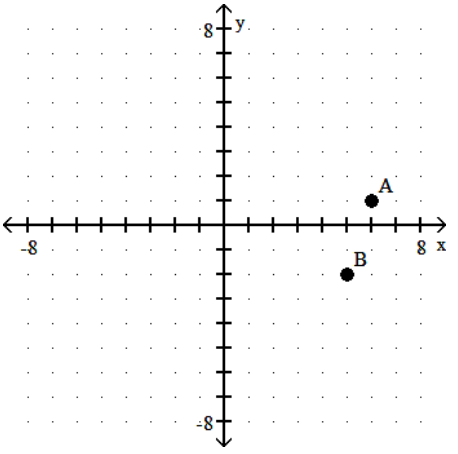
13) On the coordinate plane shown, plot the points A(1, 6) and B(-2, 0). 13) _____



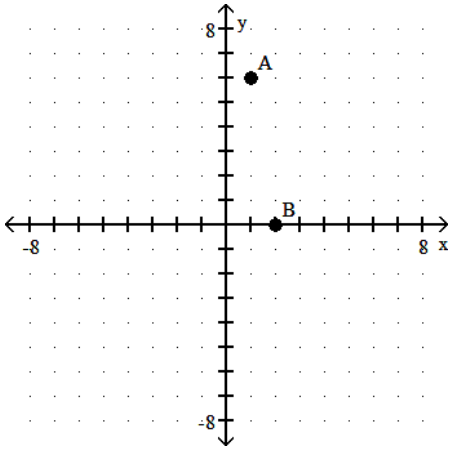
A)



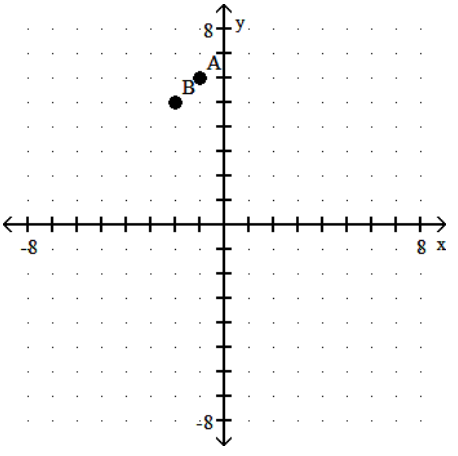
B)



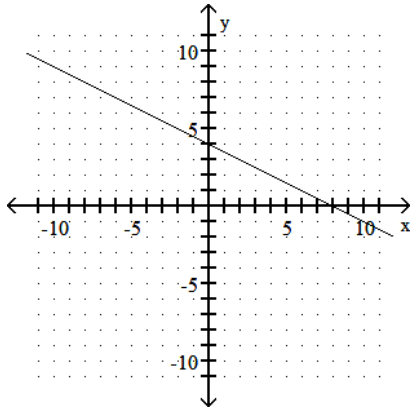
C)



D)



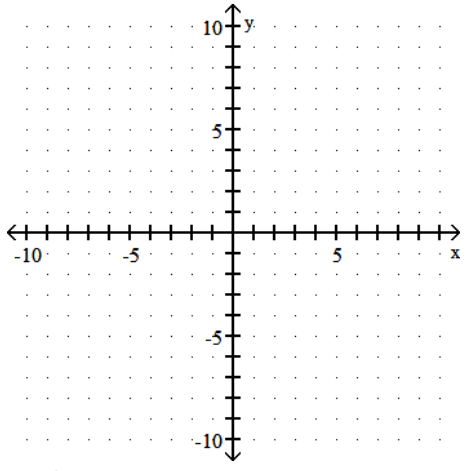
14) In the following graph, find the x-intercept and the y-intercept. 14) _____



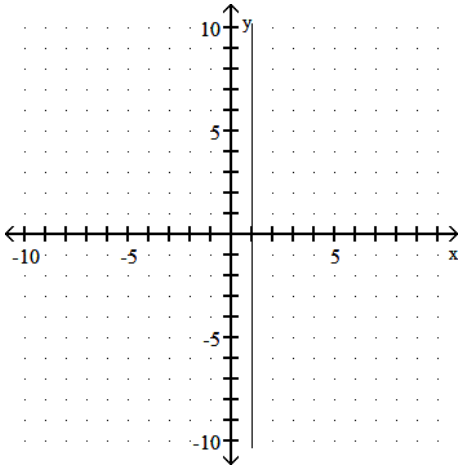
A) x-intercept: (-8, 0), y-intercept: (0, 4)
B) x-intercept: (-4, 0), y-intercept: (0, -8)
C) x-intercept: (8, 0), y-intercept: (0, 4)
D) x-intercept: (4, 0), y-intercept: (0, 8)

Graph the equation.

15) y = 1 15) _____



A)



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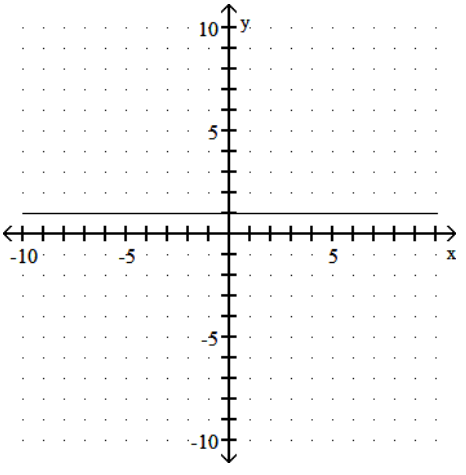

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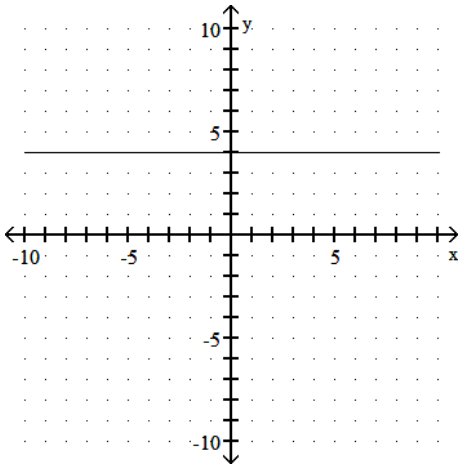
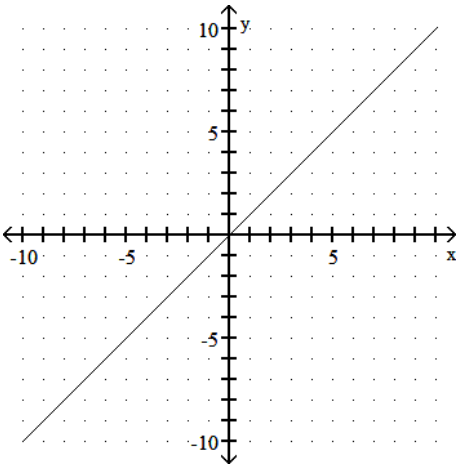
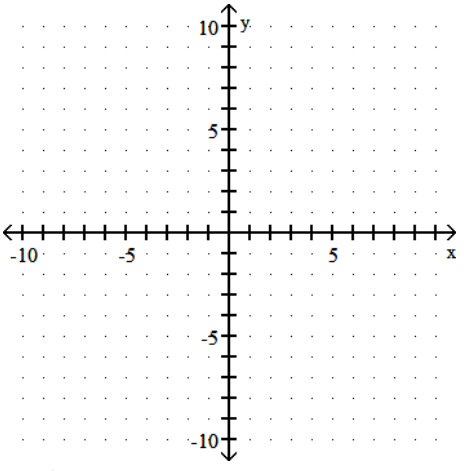

y
x
10
5
-5
-10
-10
-5
5

D)

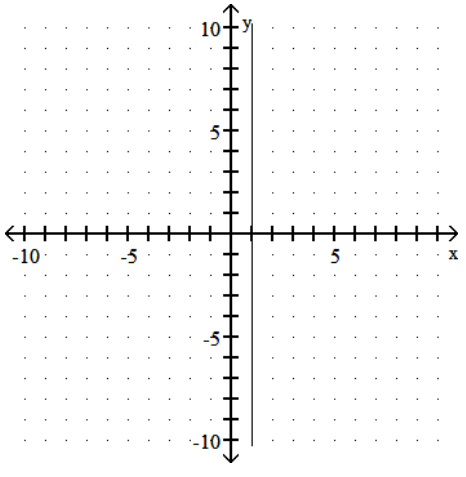

y
x
10
5
-5
-10
-10
-5
5

16) x = -1

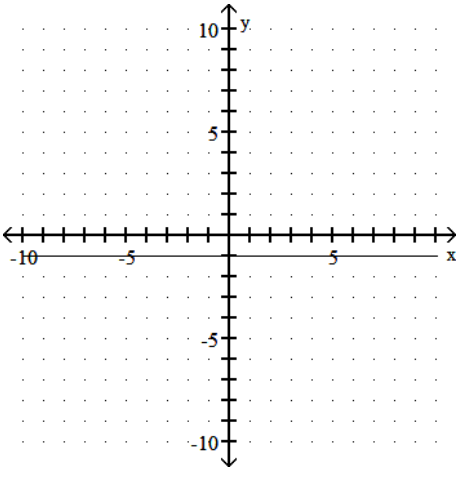
16) _____


y
x
10
5
-5
-10
-10
-5
5

A)


y
x
10
5
-5
-10
-10
-5
5

B)


y
x
10
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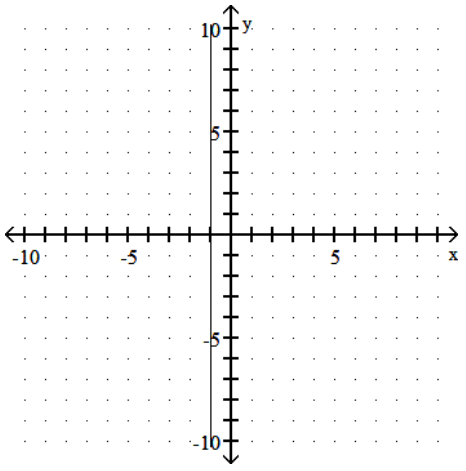
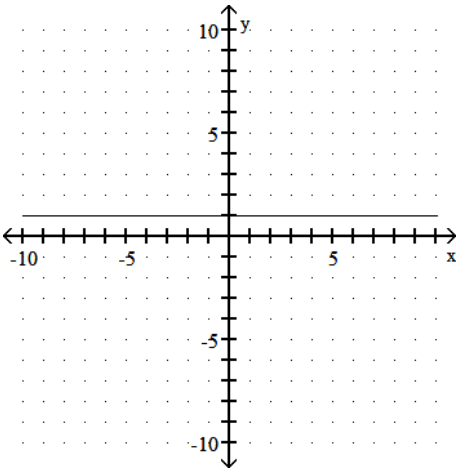
-5
-10
-10
-5
5

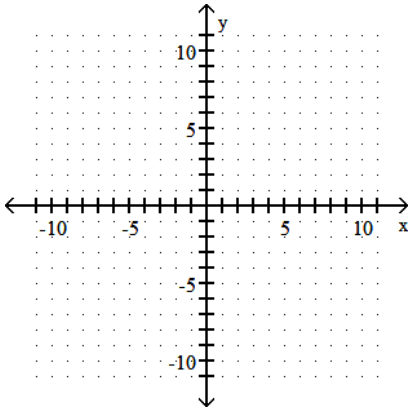
C)



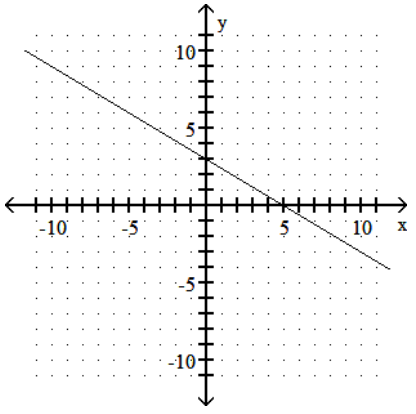
D)



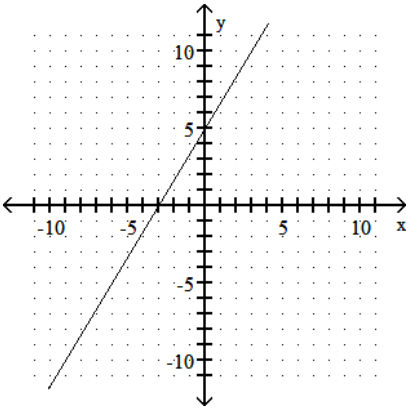
17) $5x + 3y = 15$ 17) _____



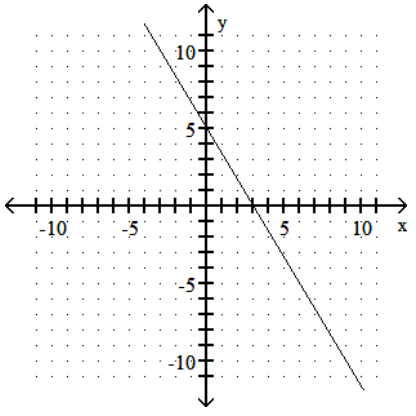
A)



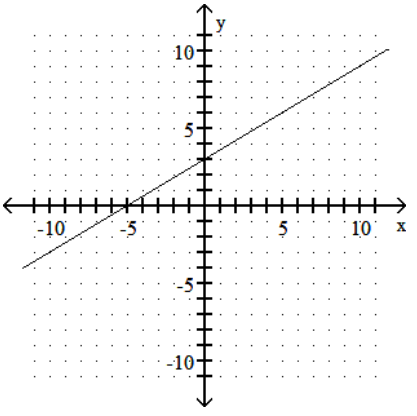
B)



C)



D)



Provide an appropriate response.

18) What are the slope and the y-intercept of the graph of $y = 9x - 4$? 18) _____

A) Slope 9; y-intercept (-4, 0)
B) Slope -4; y-intercept (0, 9)
C) Slope 9; y-intercept (0, 4)
D) Slope 9; y-intercept (0, -4)

19) Find the equation of the line with slope -4 that passes through point (0, -3). 19) _____

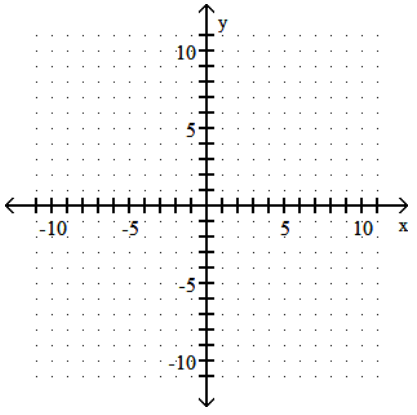
A) $y = 4x - 3$
B) $y = -4x - 3$
C) $y = -4x + 3$
D) $y = 4x + 3$

20) The points (0, 6) and (3, 4) lie on a line. Find its equation. 20) _____

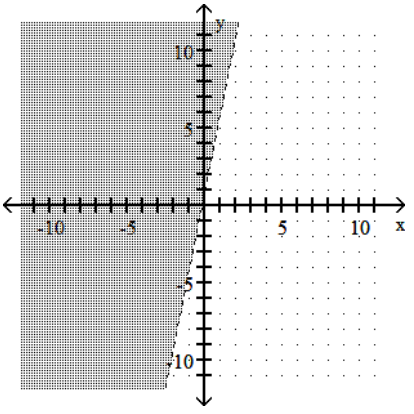
A) $y = \frac{2}{3}x + 6$
B) $y = \frac{2}{3}x - 6$
C) $y = -\frac{2}{3}x + 6$
D) $y = -\frac{2}{3}x - 6$

Graph the linear inequality.

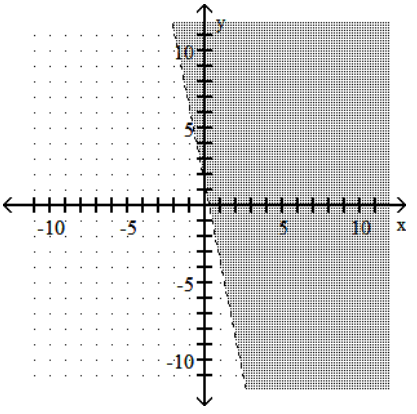
21) $y < -5x + 1$ 21) _____



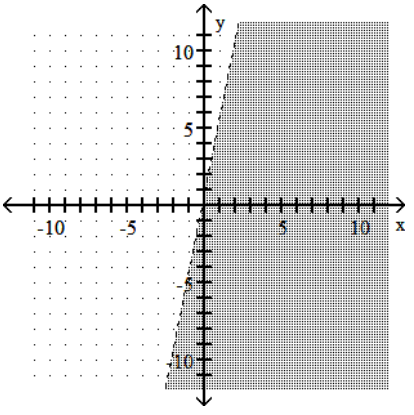
A)



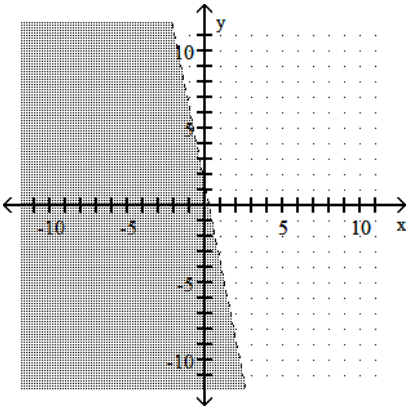
B)



C)



D)



Indicate whether the ordered pair is or is not a solution to the given system.

22) $x + y = 9$ 22) _____

$x - y = -1$

$(-4, 5)$

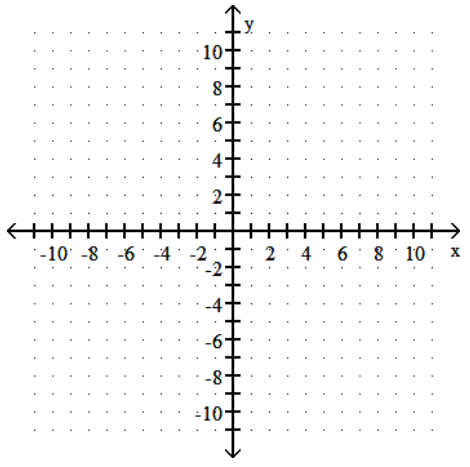
A) Not a solution

B) Solution

Solve the system by graphing.

23) $-x + y = 3$
$x + 2y = -6$

23) _____



A) (4, -1) B) (-4, -5) C) (-4, -1) D) (-5, 3)

Solve the system by substitution.

24) $x = 3y + 11$
$y = x - 5$

24) _____

A) (2, 3) B) (2, -3) C) (-2, -3) D) (-2, 3)

Solve the system by elimination.

25) $2x - y = 6$
$3x + y = 14$

25) _____

A) (2, 4) B) No solution C) (4, 3) D) (4, 2)

Simplify.

26) $(-5x^5y)^3$

26) _____

A) $-125x^8y^3$ B) $-5x^{15}y^3$ C) $-125x^{15}y^3$ D) $-125x^{15}y$

27) $\left(\frac{2r^8}{y}\right)^{-4}$

27) _____

A) $-\frac{2r^{32}}{y^4}$ B) $\frac{y^4}{16r^{32}}$ C) $\frac{y}{16r^{32}}$ D) $-\frac{16r^{32}}{y^4}$

Solve.

28) Subtract: $(6x^2 + 3x - 19) - (8x^2 - 18x + 10)$

28) _____

A) $-2x^2 + 21x - 9$ B) $-10x^{11}$ C) $-2x^2 + 11x - 9$ D) $-2x^2 + 21x - 29$

Multiply.

29) $(x + 8)(x^3 + 2x - 7)$

29) _____

A) $x^4 + 8x^3 + 2x^2 + 23x - 56$ B) $x^3 + 10x^2 + 9x - 56$
C) $x^4 + 2x^2 - 7x + 8$ D) $x^4 + 8x^3 + 2x^2 + 9x - 56$

30) $(4x - 11)^2$ 30) _____

A) $16x^2 - 88x + 121$ B) $16x^2 + 121$

C) $4x^2 + 121$ D) $4x^2 - 88x + 121$

Divide.

31) $\frac{30s^3 - 15s^2 + 30s}{-5s}$ 31) _____

A) $6s^3 - 3s^2 + 6s$ B) $6s^2 - 3s + 6$ C) $-6s^2 + 3s - 6$ D) $-6s^3 + 3s^2 - 6s$

32) $(20x^3 + 7x^2 - 2x + 3) \div (4x + 3)$ 32) _____

A) $5x^2 + 2x - 1$ B) $5x^2 - 2x + 1$ C) $x^2 - 2x + 1$ D) $5x^2 + 1$

Factor.

33) $6xy + 18y$ 33) _____

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

34) $x^2 - 4x - 96$ 34) _____

A) $(x - 12)(x + 8)$ B) $(x - 96)(x + 1)$ C) $(x - 96)(x - 1)$ D) $(x + 12)(x - 8)$

35) $6x^2 - 17xy + 12y^2$ 35) _____

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

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

36) $121 - 144m^2$ 36) _____

A) $(11 + 12m)^2$ B) $(11m - 12)(11m + 12)$

C) $(11 - 12m)^2$ D) $(11 + 12m)(11 - 12m)$

Solve.

37) $(x - 9)(x + 5) = 0$ 37) _____

A) $9, -5$ B) $9, 5$ C) $-9, 5$ D) $9, -9, 5, -5$

38) $4x^2 - 3x = 7$ 38) _____

A) $\frac{4}{7}, -1$ B) $\frac{7}{4}, -1$ C) $\frac{4}{7}, 0$ D) $\frac{7}{4}, 1$

39) $(x + 6)(x - 5) = -10$ 39) _____

A) $4, 5$ B) $-6, 5$ C) $-5, 4$ D) $6, -5$

Simplify.

40) $\frac{p^2 - 7p}{pq - 7q}$ 40) _____

A) $\frac{p(p - 7)}{q}$ B) $\frac{p}{q(p - 7)}$ C) $\frac{p}{q}$ D) $\frac{p^2}{q}$

41) $\frac{b^2 - 81}{b^2 - 5b - 36}$ 41) _____

A) $\frac{b - 9}{b - 4}$ B) $\frac{b - 9}{b + 4}$ C) $\frac{b + 9}{b - 4}$ D) $\frac{b + 9}{b + 4}$

Add. Simplify, if possible.

42) $\frac{m^2 - 9m}{m - 6} + \frac{18}{m - 6}$ 42) _____

A) $m - 6$ B) $m + 3$ C) $m - 3$ D) $\frac{m^2 - 9m + 18}{m - 6}$

43) $\frac{x + 2}{x - 7} + \frac{x - 4}{7 - x} + \frac{8(x + 1)}{x - 7}$ 43) _____

A) $\frac{10x + 6}{x - 7}$ B) $\frac{8x + 14}{x - 7}$ C) $\frac{8x + 14}{(x - 7)^3}$ D) $\frac{8x + 7}{x - 7}$

Perform the indicated operation.

44) $\frac{2}{y^2 - 3y + 2} + \frac{5}{y^2 - 1}$ 44) _____

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

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

45) $\frac{n + 2}{2n - 12} \cdot \frac{n - 6}{6n^3 - 24n}$ 45) _____

A) $\frac{1}{12n(n - 2)}$ B) $\frac{n + 2}{6n(n - 2)^2}$ C) $\frac{1}{12n(n + 2)}$ D) $\frac{n + 2}{12n(n - 2)^2}$

46) $\frac{a^2 - 36}{a^2 + 8a + 15} \div \frac{a^2 + a - 30}{a^2 - 25}$ 46) _____

A) $\frac{a - 6}{a + 3}$ B) $\frac{a + 6}{a + 3}$ C) $\frac{a - 5}{a + 3}$ D) $\frac{(a - 6)(a + 6)^2}{(a + 3)(a + 5)^2}$

Solve.

47) $\frac{1}{x - 1} + \frac{1}{4x - 4} = \frac{5}{4}$ 47) _____

A) 2 B) 1 C) 10 D) 0

48) Simplify: $\sqrt{256x^8y^6}$. 48) _____

A) $17x^4y^3$ B) $16x^4y^3$ C) $16x^8y^6$ D) $15x^4y^3$

49) Simplify: $\sqrt[6]{x^4y^2}$ 49) _____

A) $\sqrt[3]{xy}$ B) $\sqrt[3]{x^2y^2}$ C) $\sqrt[3]{x^2y}$ D) $\sqrt[6]{x^2y}$

50) Multiply: $\sqrt[3]{4xy} \cdot \sqrt[3]{9xy}$. 50) _____

A) 6xy B) 5xy C) $\sqrt[3]{36x^2y^2}$ D) $\sqrt[3]{13x^2y^2}$

51) $\sqrt{x^2 + 7x} = \sqrt{-6x - 42}$ 51) _____

A) 7, 6 B) -7, 6 C) -7, -6 D) $-\frac{1}{2}, \frac{3}{4}$

Solve by using the square root property.

52) $5z^2 + 4 = 49$ 52) _____

A) $\frac{49}{2}$ B) 4, -4 C) 3, -3 D) 3

53) $(3t + 3)^2 = 10$ 53) _____

A) $\sqrt{10} - 3, \ -\sqrt{10} - 3$ B) $\frac{\sqrt{7}}{3}, \ -\frac{\sqrt{7}}{3}$

C) $\frac{\sqrt{10} - 3}{3}, \ -\frac{\sqrt{10} - 3}{3}$ D) $\frac{\sqrt{10} + 3}{3}, \ -\frac{\sqrt{10} + 3}{3}$

Solve. Using either Factoring, Completing the Square, or the Quadratic Formula

54) $x^2 + 12x = -22$ 54) _____

A) $6 - \sqrt{22}, 6 + \sqrt{22}$ B) $-6 - \sqrt{14}, -6 + \sqrt{14}$

C) $-12 + \sqrt{22}$ D) $6 + \sqrt{14}$

Solve.

55) $2x^2 + 15x = -9 + 25x$ 55) _____

A) $5 + \sqrt{7}, 5 - \sqrt{7}$ B) $-5 + \sqrt{7}, -5 - \sqrt{7}$

C) $\frac{5 + \sqrt{7}}{2}, \frac{5 - \sqrt{7}}{2}$ D) $\frac{-5 + \sqrt{7}}{2}, \frac{-5 - \sqrt{7}}{2}$