Student: _____	**Instructor:** Alfredo Alvarez	**Assignment:** Math 0410
Date: _____	**Course:** Math 0410 Spring 2018	Homework87alekslittle

1. Insert < or > between the pair of integers to make the statement true.

   $0 \quad -4$

   0 ☐ -4

2. Simplify.

   $|-16|$

   $|-16| =$ ☐ (Simplify your answer.)

3. Evaluate $2x - y$ for the given replacement values.

   $x = 5$ and $y = -8$

   $2x - y =$ ☐

4. Evaluate.

   -8^2

   $-8^2 =$ ☐

5. Simplify.

   $(-8) + 8 \div 4$

   $(-8) + 8 \div 4 =$ ☐

6. Simplify.

   $3 + 5 \cdot 2 - 14$

   $3 + 5 \cdot 2 - 14 =$ ☐

7. Simplify.

   $|6 - 46| \div 2$

   $|6 - 46| \div 2 =$ ☐

8. Simplify.

   $(-12 - 16) \div 14 - 26$

   $(-12 - 16) \div 14 - 26 =$ ☐

9. Simplify.

   $3(-11) \div [5(-3) - 7(-2)]$

   The answer is ☐.

10. Evaluate the following expression for $x = -3$, $y = 2$, and $z = -1$.

$4x - 3y - 12z$

$4x - 3y - 12z =$ ☐

11. Solve. Check your solution.

$d - 9 = -3$

The solution is $d =$ ☐.

12. Multiply.

$-4(9p + 7)$

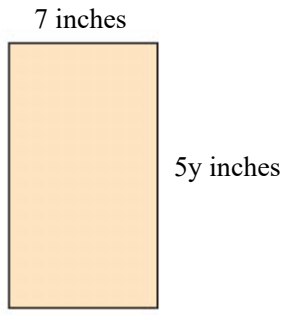
$-4(9p + 7) =$ ☐

13. Simplify the expression.

$6y - 2(y - 2) + 4$

$6y - 2(y - 2) + 4 =$ ☐

14. Find the area of the rectangle.



The area is ☐ sq in.

15. A decorator wishes to put a wallpaper border around a rectangular room that measures 24 feet by 30 feet. Find the room's perimeter. Use $P = 2L + 2W$.

The perimeter of the room is ☐ feet.

16. Solve the equation. First combine any like terms on each side of the equation.

$20 = t + 4t$

The solution is $t =$ ☐.

17. Solve and check the solution.

$2(2x - 4) = 5x$

$x =$ ☐

18. Solve the equation.

$5(y-2)=2y-10$

$y=$ ☐

19. Divide.

$\frac{4}{7}\div\frac{5}{14}$

Select the correct choice below and fill in any answer boxes in your choice.

○ **A.** $\frac{4}{7}\div\frac{5}{14}=$ ☐ (Type an integer or a simplified fraction.)

○ **B.** The answer is undefined.

20. Add and simplify.

$\frac{1}{2}+\frac{1}{4}$

$\frac{1}{2}+\frac{1}{4}=$ ☐ (Type an integer or a fraction.)

21. Subtract.

$\frac{1}{4}-\frac{5}{18}$

$\frac{1}{4}-\frac{5}{18}=$ ☐ (Type an integer or a fraction.)

22. Simplify the complex fraction.

$\frac{\frac{5}{8}}{\frac{5}{9}}$

$\frac{\frac{5}{8}}{\frac{5}{9}}=$ ☐ (Type an integer or a simplified fraction.)

23. Solve the equation and check the solution.

$-15=\frac{3}{11}x$

$x=$ ☐

24. Solve the equation.

$$\frac{m}{6} + 5 = \frac{m}{5} + 4$$

m = [ ] (Type an integer or fraction. Simplify your answer.)

25. Solve.

$$2.2x - 83 = 1.2x + 2$$

x = [ ] (Type an integer or a decimal.)

26. Solve the proportion.

$$\frac{7}{8} = \frac{x}{24}$$

x = [ ] (Type an integer or a simplified fraction.)

27. A 15-oz iced tea at a certain restaurant has 150 calories. How many calories are there in a 23-oz iced tea?

The 23-oz iced tea has [ ] calories.

28. Write the fraction as a percent.

$$\frac{1}{10}$$

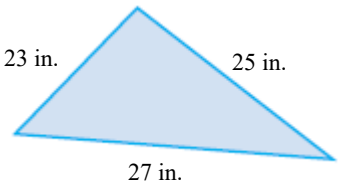
$\frac{1}{10}$ = [ ] % (Simplify your answer.)

29. Write the percent as a decimal and a fraction.
People take aspirin for a variety of reasons. The most common use of aspirin is to prevent heart disease, accounting for 36% of all aspirin use.

36% written as a decimal is [ ].

36% written as a fraction is [ ]. (Type an integer or a simplified fraction.)

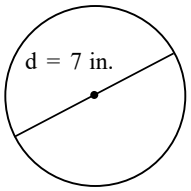
30. Find the perimeter of the following figure.



The perimeter is [ ] (1) [ ]

(1) ○ sq. in.
○ in.

31. Find the area of the given geometric figure. If the figure is a circle, give an exact area and then use 3.14 as an approximation for π to approximate the area.



The exact area of the circle is ____ (1) ____
(Simplify your answer. Type an exact answer in terms of π.)

The approximate area of the circle is ____ (2) ____
(Simplify your answer. Type an integer or decimal rounded to the nearest thousandth as needed.)

(1) ○ sq in. ○ in. ○ cu in.

(2) ○ cu in. ○ in. ○ sq in.

32. Solve the equation for x.

$9(x + 5) + 5 = 50$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

○ **A.** x = ____ (Simplify your answer. Type an integer or a fraction.)

○ **B.** The solution is all real numbers.

○ **C.** There is no solution.

33. Solve the equation for y.

$3x + y = 10$

y = ____

34. Solve the formula for the specified variable.

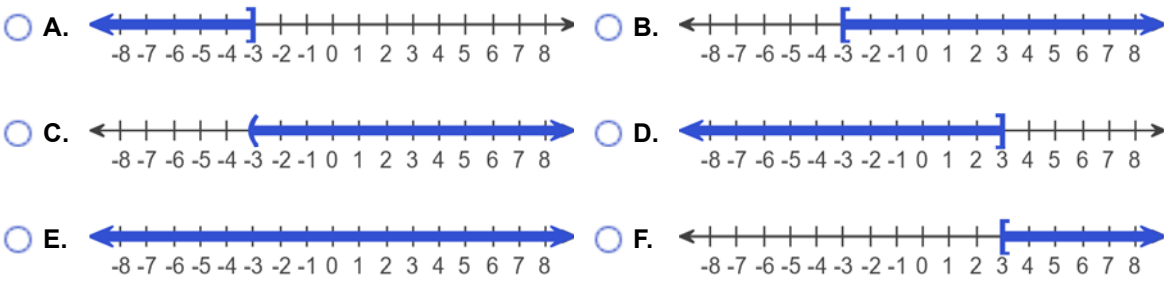
$A = B + Bcd$ for c

c = ____

35. Solve the inequality. Graph the solution set and write it in interval notation.

$-8x \leq 24$

Choose the correct graph below.



The solution to the inequality $-8x \leq 24$ is [ ].

(Type your answer in interval notation.)

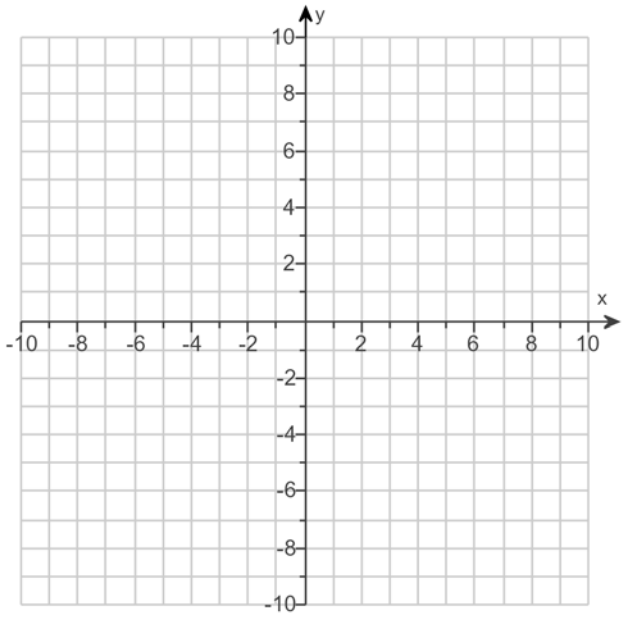
36. For the following equation, find three ordered pair solutions by completing the table. Then use the ordered pairs to graph the equation.

$y = -4x + 3$

Find three ordered pair solutions of the given equation.

x	y
0	
1	
2	

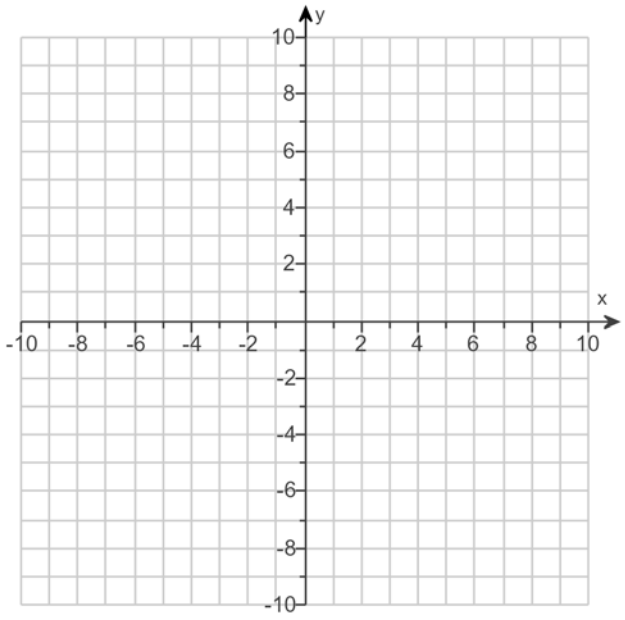
Use the graphing tool to graph the line.



37. Graph the linear equation.

$y = 6$

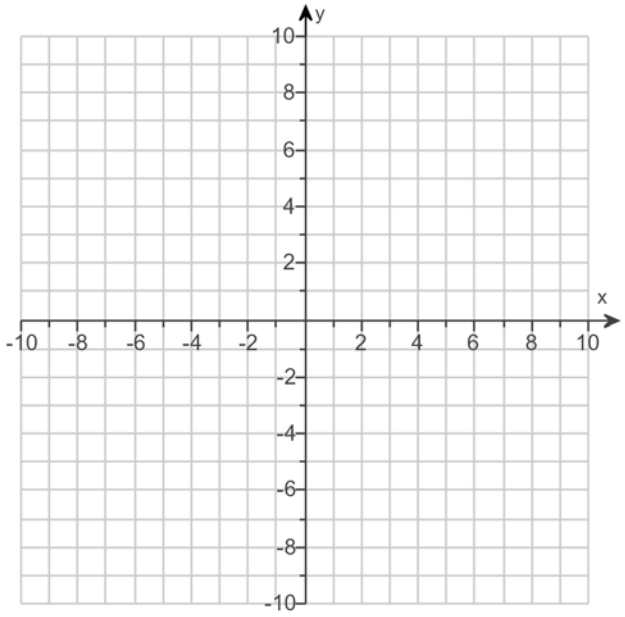
Use the graphing tool to graph the linear equation.



38. Plot the intercepts to graph the equation.

$7x - 2y = 14$

Use the graphing tool to graph the equation. Use the intercepts when drawing the line. If only one intercept exists, use it and another point to draw the line.



39. Find the slope of the line that goes through the given points.

(5, 8) and (− 6, 2)

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The slope is _____. (Simplify your answer.)
- **B.** The slope is undefined.

40. Find the slope of the line.

$3x - 5y = 15$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The slope of the line is _____. (Simplify your answer.)
- **B.** The slope of the line is undefined.

41. Find the slope-intercept form of the line whose slope is 7 and that passes through the point $(-3,7)$.

The equation of the line is _____.
(Type your answer in slope-intercept form.)

42. Determine whether each ordered pair is a solution of the system of linear equations.

$$\begin{cases} 3x - y = 7 \\ x + 4y = 11 \end{cases}$$

a. (4,5)
b. (3,2)

a. Is (4,5) a solution?

- Yes
- No

b. Is (3,2) a solution?

- Yes
- No

43. Solve the system of equations by the substitution method.

$$\begin{cases} y = 2x + 1 \\ 4y - 6x = 10 \end{cases}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The solution is _____. (Simplify your answer. Type an ordered pair.)
- **B.** There are infinitely many solutions; $\{(x,y)|y = 2x + 1\}$ or $\{(x,y)|4y - 6x = 10\}$.
- **C.** There is no solution; {} or $\varnothing$.

44. Solve the system of equations by the addition method.

$$\begin{cases} x + 4y = 11 \\ 3x + 3y = -3 \end{cases}$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- **A.** The solution is _____. (Simplify your answer. Type an ordered pair.)
- **B.** There are infinitely many solutions; $\{(x,y) \mid x + 4y = 11\}$ or $\{(x,y) \mid 3x + 3y = -3\}$.
- **C.** There is no solution; {} or ∅.

45. Use the product rule to simplify the expression. Write the result using exponents.

$(-3m^4n^4)(7mn^5)$

$(-3m^4n^4)(7mn^5) =$ ☐

46. Use the product rule to simplify the expression. Write the results using exponents.

$(3z^{12})(-2z^7)(z^2)$

$(3z^{12})(-2z^7)(z^2) =$ ☐

47. Use the power rule to simplify the expression.

$(z^2)^5$

$(z^2)^5 =$ ☐

(Simplify your answer. Type exponential notation with positive exponents.)

48. Use the power rule and the power of a product rule to simplify the expression.

$(4x^6)^2$

$(4x^6)^2 =$ ☐

49. Use the power rule and the power of a product or quotient rule to simplify the expression.

$(-5a^5b^3c)^2$

$(-5a^5b^3c)^2 =$ ☐ (Type your answer using exponential notation.)

50. Use the power rule, the power of a product rule, and the power of a quotient rule to simplify the expression.

$$\left(\frac{-8xz^5}{y}\right)^3$$

$$\left(\frac{-8xz^5}{y}\right)^3 =$$ ☐

51. Simplify the expression. Assume that all bases are not equal to 0.

$$\frac{9x^4y^2z}{x^2yz}$$

$\frac{9x^4y^2z}{x^2yz} =$ ☐

52. If $P(x) = x^2 + x + 3$, find P(7).

$P(7) =$ ☐

53. Simplify the following expression by combining the like terms.

$$6a^2 - 3ab + 3b^2 - 2a^2 - 9ab + 5b^2$$

$6a^2 - 3ab + 3b^2 - 2a^2 - 9ab + 5b^2 =$ ☐

54. Subtract.

$$\left(2y^2 + 2y - 3\right) - (-5y + 6)$$

$\left(2y^2 + 2y - 3\right) - (-5y + 6) =$ ☐ (Simplify your answer.)

55. Multiply.

$$(x + 7)\left(x^3 - 5x + 6\right)$$

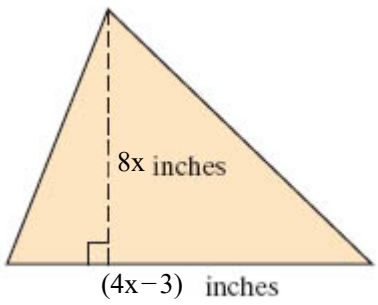
$(x + 7)\left(x^3 - 5x + 6\right) =$ ☐

56. Multiply.

$$-4x\left(x^2 + 3x - 9\right)$$

$-4x\left(x^2 + 3x - 9\right) =$ ☐ (Simplify your answer.)

57. Find the area of the triangle.



☐ sq in.

58. Multiply.

$(a-7)(a+7)$

$(a-7)(a+7) =$ ☐ (Simplify your answer.)

59. Use a special product to multiply, if possible.

$(4d-3c)^2$

Choose the expression equivalent to $(4d-3c)^2$.

- ○ **A.** $16d^2+9c^2$
- ○ **B.** $16d^2+24dc+9c^2$
- ○ **C.** $16d^2-9c^2$
- ○ **D.** $16d^2-24dc+9c^2$
- ○ **E.** none of these

60. Simplify the following expression.

$\left(\frac{1}{3}\right)^{-2}$

$\left(\frac{1}{3}\right)^{-2} =$ ☐ (Type an integer or a simplified fraction.)

61. Simplify. Use positive exponents for any variables. Assume that all bases are not equal to 0.

$\frac{c^{-1}}{c^{-8}}$

$\frac{c^{-1}}{c^{-8}} =$ ☐ (Use positive exponents only.)

62. Simplify the following expression. Write the result using positive exponents only.

$\left(-4x^5y^{-5}\right)\left(5x^{-1}y^3\right)$

$\left(-4x^5y^{-5}\right)\left(5x^{-1}y^3\right) =$ ☐ (Type exponential notation with positive exponents.)

63. Write the number in scientific notation.

0.00000171

0.00000171 = ☐
(Use the multiplication symbol in the math palette as needed.)

64. Find the GCF for the given list.

27, 72

The GCF is [ ].

65. Factor out the greatest common factor from the polynomial.

$5x + 30$

$5x + 30 =$ [ ] (Type your answer in factored form.)

66. Factor the trinomial completely.

$x^2 - 10x + 24$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $x^2 - 10x + 24 =$ [ ] (Type your answer in factored form.)
- **B.** The polynomial is prime.

67. Factor the trinomial completely.

$x^2 - 4x - 45$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $x^2 - 4x - 45 =$ [ ] (Type your answer in factored form.)
- **B.** The polynomial is prime.

68. Factor the following binomial completely.

$121x^2 - 81y^2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $121x^2 - 81y^2 =$ [ ] (Factor completely.)
- **B.** The polynomial is prime.

69. Solve the equation.

$8x(x - 7) = 0$

$x =$ [ ] (Use a comma to separate answers as needed.)

70. Solve the equation.

$(5x + 9)(4x - 9) = 0$

$x =$ [ ]
(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

71. Solve.

$x^2 + 3x - 10 = 0$

$x =$ ☐

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

72. Solve.

$x^2 - 4x = 0$

$x =$ ☐

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

73. Solve the equation.

$x^3 - 12x^2 + 27x = 0$

$x =$ ☐

(Simplify your answer. Type each solution only once. Use a comma to separate answers as needed.)

74. Find the product and simplify if possible.

$$\frac{x^2 - 36}{x^2 - 4x - 12} \cdot \frac{x + 2}{x}$$

$\frac{x^2 - 36}{x^2 - 4x - 12} \cdot \frac{x + 2}{x} =$ ☐ (Simplify your answer.)

75. Add the rational expressions.

$$\frac{5m}{4n} + \frac{3m}{4n}$$

$\frac{5m}{4n} + \frac{3m}{4n} =$ ☐ (Simplify your answer.)

76. Solve the equation.

$$\frac{z - 5}{4} = \frac{z}{9}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The solution is ☐.
  (Type an integer or a simplified fraction. Use a comma to separate answers as needed.)
- **B.** There is no solution.

77. Simplify by factoring. Assume that all variables under radicals represent nonnegative numbers.

$\sqrt{121x^6}$

Select the correct choice below and, if necessary, fill in the answer box that completes your choice.

- **A.** $\sqrt{121x^6}$ = _____
  (Type an exact answer, using radicals as needed.)
- **B.** The square root is not a real number.

78. Find the cube root.

$\sqrt[3]{343}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\sqrt[3]{343}$ = _____
- **B.** The cube root is not a real number.

79. Simplify the radical.

$\sqrt{\frac{25}{64}}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\sqrt{\frac{25}{64}}$ = _____ (Type an integer or a simplified fraction.)
- **B.** The square root is not a real number.

80. Use radical notation to write the expression. Simplify if possible.

$\left(\frac{1}{81}\right)^{\frac{1}{4}}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $\left(\frac{1}{81}\right)^{\frac{1}{4}}$ = _____
  (Simplify your answer. Type an exact answer, using radicals as needed.)
- **B.** The answer is not a real number.

81. Use radical notation to rewrite the expression. Simplify if possible.

$625^{5/4}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** $625^{5/4} =$ _____
  (Simplify your answer. Type an exact answer, using radicals as needed.)
- **B.** The answer is not a real number.

82. Simplify by factoring.

$\sqrt{40}$

$\sqrt{40} =$ ☐
(Type an exact answer, using radicals as needed.)

83. Solve.

$\sqrt{x-19} = 5$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- **A.** The solution(s) is(are) x = _____.
  (Use a comma to separate answers as needed.)
- **B.** The solution set is ∅.

84. Express in terms of i.

$\sqrt{-16}$

$\sqrt{-16} =$ ☐
(Simplify your answer. Type an exact answer, using radicals and i as needed.)

85. Use the square root property to solve the equation. The equation has real number solutions.

$(x+8)^2 = 36$

x = ☐
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

86. Use the quadratic formula to solve the equation.

$m^2 + 8m + 15 = 0$

m = ☐
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

87. Use the quadratic formula to solve the equation.

$x^2 - 6x + 9 = 0$

x = ☐
(Simplify your answer. Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

1. >

2. 16

3. 18

4. -64

5. -6

6. -1

7. 20

8. -28

9. 33

10. -6

11. 6

12. $-36p-28$

13. $4y+8$

14. $35y$

15. 108

16. 4

17. -8

18. 0

19. A. $\frac{4}{7} \div \frac{5}{14} =$ $\frac{8}{5}$ (Type an integer or a simplified fraction.)

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20. $\frac{3}{4}$

---

21. $-\frac{1}{36}$

---

22. $\frac{9}{8}$

---

23. -55

---

24. 30

---

25. 85

---

26. 21

---

27. 230

---

28. 10

---

29. 0.36

$\frac{9}{25}$

---

30. 75

(1) in.

---

31. 12.25π

(1) sq in.

38.465

(2) sq in.

---

32. A. x = 0 (Simplify your answer. Type an integer or a fraction.)

---

33. $10 - 3x$

---

34. $\dfrac{A - B}{Bd}$

35.

B.

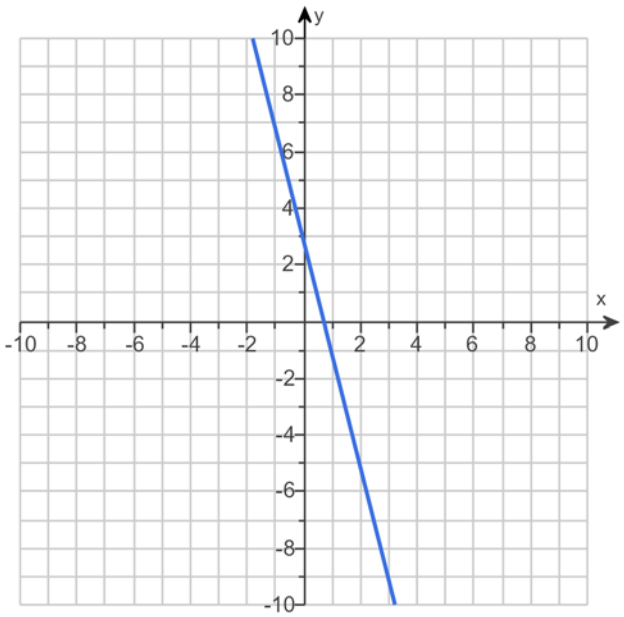
$[-3, \infty)$

---

36. 3

-1

-5



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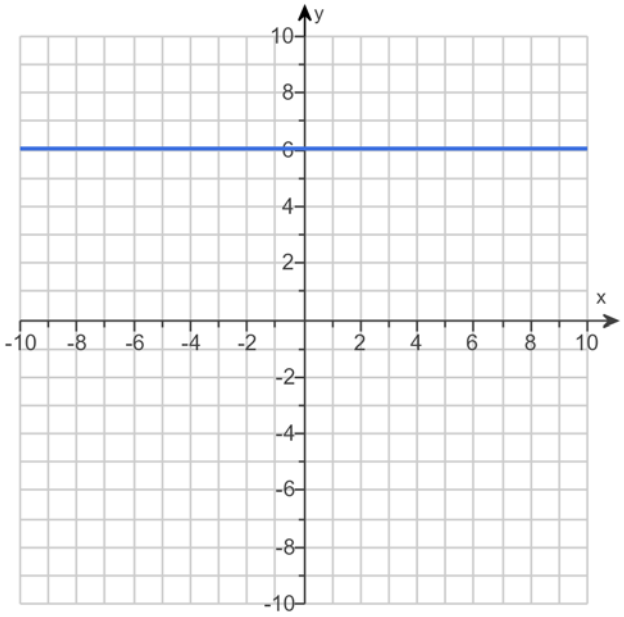

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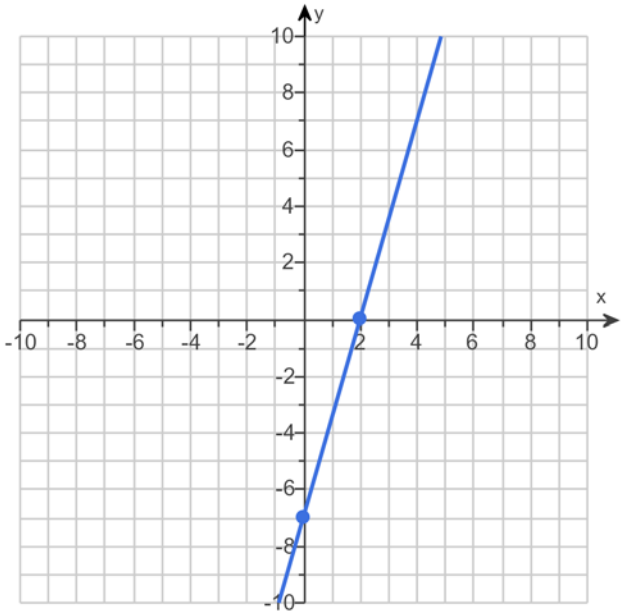

39. A. The slope is $\frac{6}{11}$. (Simplify your answer.)

40. A. The slope of the line is $\frac{3}{5}$. (Simplify your answer.)

41. $y = 7x + 28$

42. No

Yes

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43. A. The solution is **(3,7)**. (Simplify your answer. Type an ordered pair.)

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44. A. The solution is **(− 5,4)**. (Simplify your answer. Type an ordered pair.)

---

45. $-21m^5n^9$

---

46. $-6z^{21}$

---

47. z^{10}

---

48. $16x^{12}$

---

49. $25a^{10}b^6c^2$

---

50. $\dfrac{-512x^3z^{15}}{y^3}$

---

51. $9x^2y$

---

52. 59

---

53. $4a^2 - 12ab + 8b^2$

---

54. $2y^2 + 7y - 9$

---

55. $x^4 + 7x^3 - 5x^2 - 29x + 42$

---

56. $-4x^3 - 12x^2 + 36x$

---

57. $16x^2 - 12x$

---

58. $a^2 - 49$

59. D. $16d^2 - 24dc + 9c^2$

60. 9

61. c^7

62. $-\frac{20x^4}{y^2}$

63. 1.71×10^{-6}

64. 9

65. $5(x + 6)$

66. A. $x^2 - 10x + 24 =$ **$(x - 6)(x - 4)$** (Type your answer in factored form.)

67. A. $x^2 - 4x - 45 =$ **$(x + 5)(x - 9)$** (Type your answer in factored form.)

68. A. $121x^2 - 81y^2 =$ **$(11x + 9y)(11x - 9y)$** (Factor completely.)

69. 7,0

70. $-\frac{9}{5}, \frac{9}{4}$

71. $-5,2$

72. 0,4

73. 0,3,9

74. $\frac{x+6}{x}$

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75. $\frac{2m}{n}$

---

76. A. The solution is **9**.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

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77. A. $\sqrt{121x^6}$ = **$11x^3$** (Type an exact answer, using radicals as needed.)

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78. A. $\sqrt[3]{343}$ = **7**

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79. A. $\sqrt{\frac{25}{64}}$ = **$\frac{5}{8}$** (Type an integer or a simplified fraction.)

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80. A. $\left(\frac{1}{81}\right)^{\frac{1}{4}}$ = **$\frac{1}{3}$** (Simplify your answer. Type an exact answer, using radicals as needed.)

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81. A. $625^{5/4}$ = **3125** (Simplify your answer. Type an exact answer, using radicals as needed.)

---

82. $2\sqrt{10}$

---

83. A. The solution(s) is(are) x = **44**. (Use a comma to separate answers as needed.)

---

84. $4i$

---

85. $-2, -14$

---

86. $-5, -3$

---

87. 3
