Student: _____	**Instructor:** Alfredo Alvarez	**Assignment:**
Date: _____	**Course:** Math 0410 Spring 2018	MATHFIESTASAPREALEKS150

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

   $x = 9$ and $y = -1$

   $2x - y =$ [ ]

   Answer: 19

---

2. Simplify.

   $6 + 9 \cdot 8 - 15$

   $6 + 9 \cdot 8 - 15 =$ [ ]

   Answer: 63

---

3. Simplify.

   $6 \cdot 2 - 5 \cdot 4 + (-25)$

   $6 \cdot 2 - 5 \cdot 4 + (-25) =$ [ ]

   Answer: -33

---

4. Simplify.

   $8(-12) \div [5(-8) - 3(-13)]$

   The answer is [ ].

   Answer: 96

---

5. Evaluate the following expression for $x = -2$ and $y = 6$.

   $x^2 - y$

   $x^2 - y =$ [ ]

   Answer: -2

---

6. Solve. Check your solution.

   $d - 2 = -12$

   The solution is $d =$ [ ].

   Answer: -10

---

7. Solve.

$$\frac{n}{2} = -5$$

The solution is n = [ ].

Answer: -10

---

8. Simplify the expression by combining like terms.

$6x - 18x$

$6x - 18x =$ [ ]

Answer: $-12x$

---

9. Multiply.

$-6(2y + 2)$

$-6(2y + 2) =$ [ ]

Answer: $-12y - 12$

---

10. Simplify the expression.

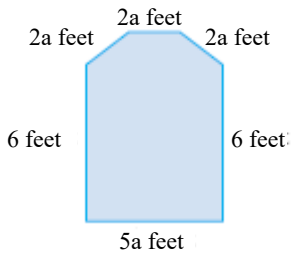
$4y - 2(y - 3) + 4$

$4y - 2(y - 3) + 4 =$ [ ]

Answer: $2y + 10$

---

11. Find the perimeter of the figure.



The perimeter is [ ] feet. (Simplify your answer.)

Answer: $11a + 12$

---

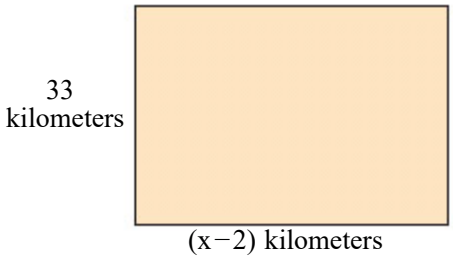
12. Find the perimeter of the figure.

The perimeter is ☐ inches. (Simplify your answer.)

Answer: $-15x+45$

---

13. Find the area of the rectangle.



The area is ☐ sq km.
(Simplify your answer.)

Answer: $33x-66$

---

14. A decorator wishes to put a wallpaper border around a rectangular room that measures 13 feet by 17 feet. Find the room's perimeter. Use $P = 2L + 2W$.

The perimeter of the room is ☐ feet.

Answer: 60

---

15. Solve and check the solution.

$4(3x-2) = 13x$

$x =$ ☐

Answer: -8

---

16. Solve the equation.

$-4(x+6)-43 = 5-36$

The answer is $x =$ ☐.

Answer: -9

---

17. Solve the following equation.

$$\frac{x}{-3} = 4^2 - |-6| - (-5)$$

The solution is [ ].
(Simplify your answer.)

Answer: -45

---

18. Solve the equation.

$$2x - 2 = 3x + 9$$

$x =$ [ ]

Answer: -11

---

19. Solve the equation.

$$-16x - 20 = -12x + 120$$

$x =$ [ ]

Answer: -35

---

20. Solve the equation.

$$5(y - 3) = 2y - 15$$

$y =$ [ ]

Answer: 0

---

21. Solve the equation.

$$4t - 1 = 5(t + 2)$$

$t =$ [ ]

Answer: -11

---

22. Solve the equation.

$$2(3c - 1) - 2 = 2c + 4$$

$c =$ [ ]

Answer: 2

---

23. Solve the equation.

$5n + 10 = 55$

$n =$ ☐

Answer: 9

---

24. During the women's basketball championship game, team A scored 4 more points than team B. Together, both teams scored a total of 150 points. How many points did the Champion team A score during this game?

☐ points

Answer: 77

---

25. Multiply. Write the product in simplest form.

$-\frac{3}{8} \cdot \frac{5}{6}$

$-\frac{3}{8} \cdot \frac{5}{6} =$ ☐

Answer: $-\frac{5}{16}$

---

26. Multiply.

$\frac{3}{14} \cdot \frac{1}{5} \cdot \frac{7}{15}$

$\frac{3}{14} \cdot \frac{1}{5} \cdot \frac{7}{15} =$ ☐ (Type a simplified fraction.)

Answer: $\frac{1}{50}$

---

27. Evaluate the following expression.

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

$\left(-\frac{4}{5}\right)^2 =$ ☐ (Simplify your answer. Type an integer or a fraction.)

Answer: $\frac{16}{25}$

---

28. Divide.

$$\frac{7}{18} \div \frac{11}{36}$$

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

○ **A.** $\frac{7}{18} \div \frac{11}{36} =$ _____ (Type an integer or a simplified fraction.)

○ **B.** The answer is undefined.

Answer: A. $\frac{7}{18} \div \frac{11}{36} = \frac{\mathbf{14}}{\mathbf{11}}$ (Type an integer or a simplified fraction.)

---

29. Perform the indicated operation.

$$\frac{49x^2}{10y} \div \frac{14x}{15y}$$

$\frac{49x^2}{10y} \div \frac{14x}{15y} =$ ☐

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

Answer: $\frac{21x}{4}$

---

30. Find $\frac{3}{8}$ of 32. Write the answer in simplest form.

$\frac{3}{8}$ of 32 is ☐. (Simplify your answer.)

Answer: 12

---

31. Add and simplify.

$$\frac{5}{21} + \frac{1}{21}$$

$\frac{5}{21} + \frac{1}{21} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{2}{7}$

---

32. Add and simplify.

$\frac{1}{5} + \frac{7}{10}$

$\frac{1}{5} + \frac{7}{10} =$ ☐ (Type an integer or a fraction.)

Answer: $\frac{9}{10}$

---

33. Subtract.

$\frac{1}{8} - \frac{5}{12}$

$\frac{1}{8} - \frac{5}{12} =$ ☐ (Type an integer or a fraction.)

Answer: $-\frac{7}{24}$

---

34. Simplify the complex fraction.

$$\frac{\frac{5}{7}}{\frac{5}{6}}$$

$\frac{\frac{5}{7}}{\frac{5}{6}} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{6}{7}$

---

35. Solve the equation and check the solution.

$-24 = \frac{4}{13}x$

$x =$ ☐

Answer: -78

---

36. Solve the equation.

$$\frac{m}{6} = \frac{m}{7} - 1$$

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

Answer: -42

---

37. Solve the equation.

$$\frac{9}{4} - \frac{z}{3} = \frac{5}{12}$$

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

Answer: $\frac{11}{2}$

---

38. Solve.

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

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

Answer: -7

---

39. Solve the equation.

$$\frac{m}{5} + 4 = \frac{m}{3} + 6$$

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

Answer: -15

---

40. Multiply.

$$-5.876 \times 1000$$

-5.876×1000 = [ ] (Type an integer or a decimal.)

Answer: -5876

---

41. Divide.

$$\frac{28.156}{100}$$

$\frac{28.156}{100}$ = ☐

Answer: 0.28156

---

42. Solve.

$1.6x - 21 = 1.1x + 5$

x = ☐ (Type an integer or a decimal.)

Answer: 52

---

43. Solve the proportion.

$$\frac{7}{8} = \frac{x}{16}$$

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

Answer: 14

---

44. A 16-oz iced tea at a certain restaurant has 72 calories. How many calories are there in a 36-oz iced tea?

The 36-oz iced tea has ☐ calories.

Answer: 162

---

45. Write the fraction as a percent.

$$\frac{3}{10}$$

$\frac{3}{10}$ = ☐ % (Simplify your answer.)

Answer: 30

---

46. Write the percent as a decimal and a fraction.

People take a certain medication for a variety of reasons. The most common use is to prevent heart disease, accounting for 44% of all the medication's use.

44% written as a decimal is [ ].

44% written as a fraction is [ ]. (Type an integer or a simplified fraction.)

Answers 0.44

$\frac{11}{25}$

---

47. A stereo normally priced at $430 is on sale for 30% off. Find the discount and the sale price.

The discount is $[ ].

The sale price is $[ ].

Answers 129.00

301.00

---

48. A company borrows $64,000 for 5 years at a simple interest rate of 10.5%. Find the interest paid on the loan and the total amount paid.

The interest paid on the loan is $[ ].

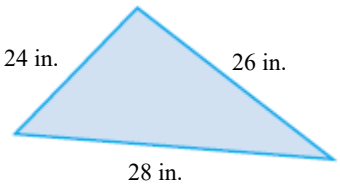
The total amount paid is $[ ].

Answers 33,600

97,600

---

49. Find the perimeter of the following figure.



The perimeter is [ ] (1) [ ]

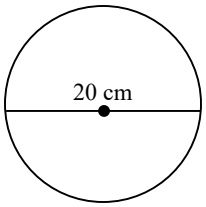
(1) ○ in.
○ sq. in.

Answers 78

(1) in.

---

50. Find the circumference of the circle. Give the exact circumference and then an approximation. Use $\pi \approx 3.14$.



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

The approximate circumference of the circle is ____ (2) ____
(Type an integer or a decimal rounded to the nearest hundredth.)

(1) ○ square centimeters. ○ centimeters.

(2) ○ feet. ○ meters. ○ centimeters.

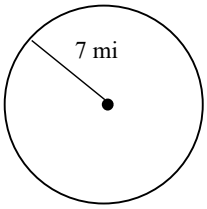
Answers 20π

(1) centimeters.

62.8

(2) centimeters.

51. Find the circumference of the circle. Give the exact circumference and then an approximation. Use $\pi \approx 3.14$.



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

The approximate circumference of the circle is ____ (2) ____
(Type an integer or a decimal rounded to the nearest hundredth.)

(1) ○ miles. ○ square miles.

(2) ○ miles. ○ square miles.

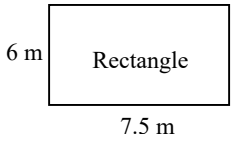
Answers 14π

(1) miles.

43.96

(2) miles.

52. Find the area of the given geometric figure.



The area of the rectangle is [ ] (1) [ ]
(Simplify your answer.)

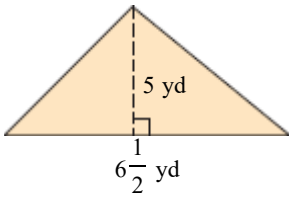
(1) ○ sq m.
○ m.
○ cu m.

Answers 45

(1) sq m.

---

53. Find the area of the geometric figure.



The area is [ ] (1) [ ]. (Simplify your answer.)

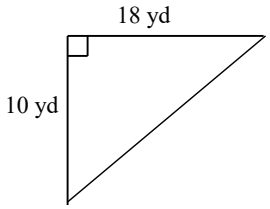
(1) ○ yards
○ square yards
○ cubic yards

Answers $16\frac{1}{4}$

(1) square yards

---

54. Find the area of the given geometric figure.



The area of the triangle is [ ] (1) [ ]
(Simplify your answer.)

(1) ○ yards.
○ cubic yards.
○ square yards.

Answers 90

(1) square yards.

---

55. A pizzeria will bake and deliver a round pizza with a 14-inch diameter. Find the exact area of the top of the pizza and an approximation. Use 3.14 as an approximation for π.

The exact area is [ ] (1) [ ].
(Simplify your answer. Type an exact answer in terms of π.)

The approximate area is [ ] (2) [ ].
(Type an integer or decimal rounded to two decimal places as needed.)

(1) ○ inches ○ square inches ○ cubic inches

(2) ○ inches ○ square inches ○ cubic inches

Answers 49π

(1) square inches

153.86

(2) square inches

---

56. A $18\frac{1}{2}$-foot by 14-foot concrete wall is to be built using concrete blocks. Find the area of the wall.

The area of the wall is [ ] (1) [ ]
(Type an integer or a decimal.)

(1) ○ sq ft. ○ cu ft. ○ ft.

Answers 259

(1) sq ft.

---

57. Convert as indicated. When necessary, round to the nearest tenth of a degree.

113°F to degrees Celsius

113°F = [ ] $^\circ$C
(Round to the nearest tenth as needed.)

Answer: 45

---

58. Solve the equation for x.

$-2(x-7)+6=20$

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.

Answer: A. $x =$ **0** (Simplify your answer. Type an integer or a fraction.)

---

59. Solve the equation for y.

$7x+y=9$

$y =$ [ ]

Answer: $9-7x$

---

60. Solve the formula for the specified variable.

$A = P + Prt$ for r

$r =$ [ ]

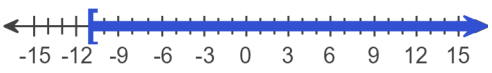
Answer: $\frac{A-P}{Pt}$

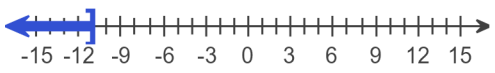
---

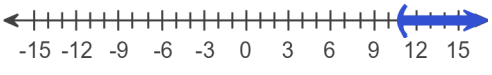
61. Graph the inequality on the number line. Then write the solutions in interval notation.

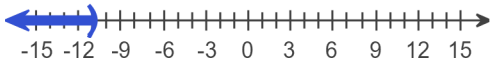
$y < -11$

Choose the correct graph below.

- **A.** 

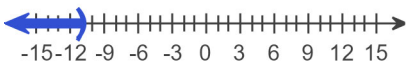
- **B.** 

- **C.** 

- **D.** 

The solution to the inequality $y < -11$ is [ ].
(Type your answer in interval notation.)

Answers

D. 

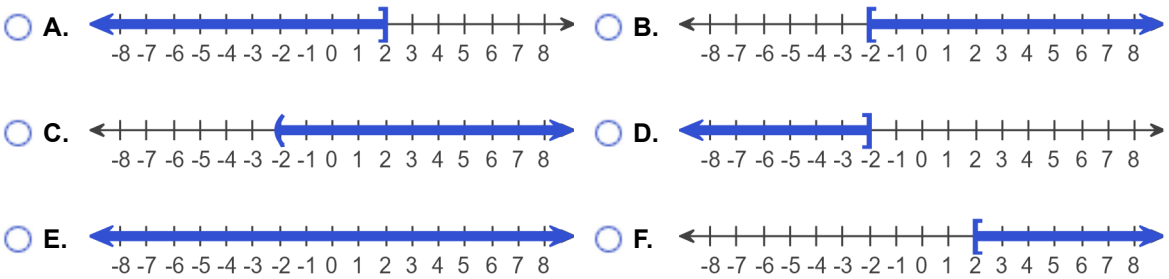
$(-\infty, -11)$

---

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

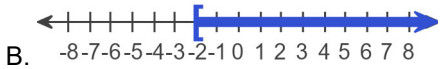
$-6x \leq 12$

Choose the correct graph below.



The solution to the inequality $-6x \leq 12$ is [ ].
(Type your answer in interval notation.)

Answers



$[-2, \infty)$

63. Solve the inequality.

$-6x + 4 \geq 4(3 - x)$

The solution set is [ ]. (Type your answer in interval notation.)

Answer: $(-\infty, -4]$

64.

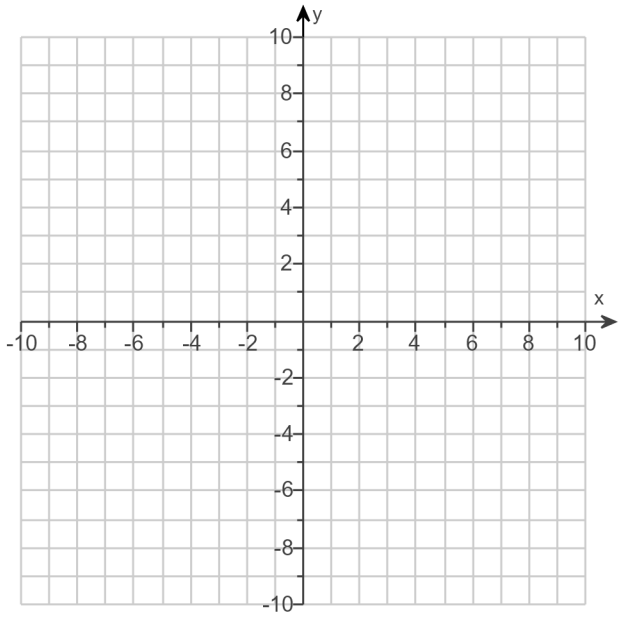
For the following equation, find three ordered pair solutions by completing the table. Then use the ordered pairs to graph the equation.

$y = -4x + 2$

Find three ordered pair solutions of the given equation.

x	y
0	
1	
2	

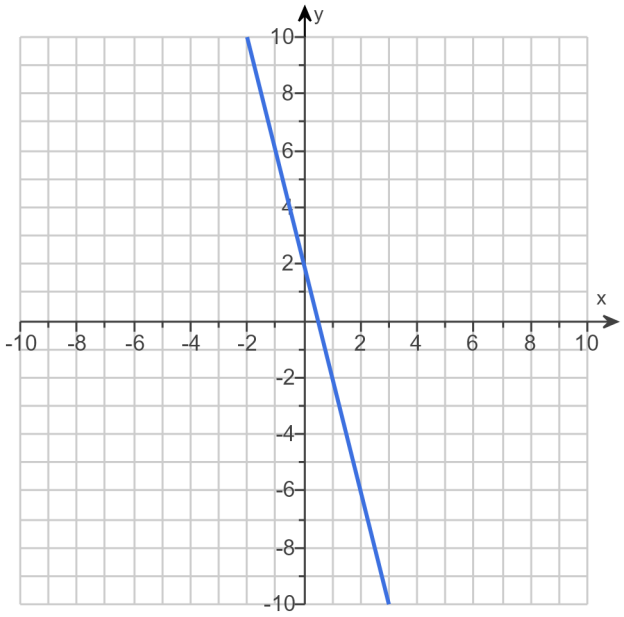
Use the graphing tool to graph the line.



Answers 2

-2

-6

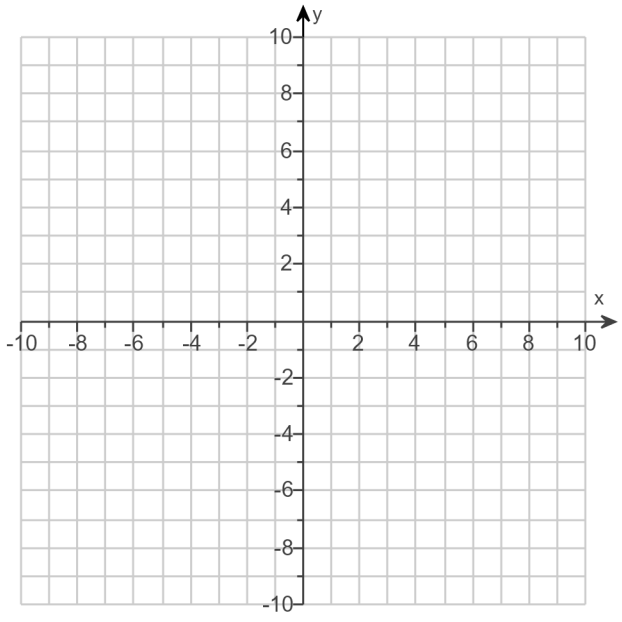


65.

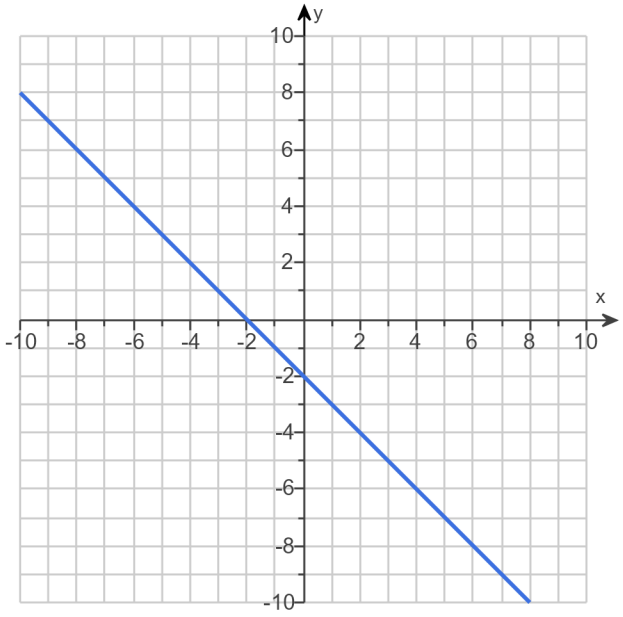
Graph the linear equation by plotting points.

$x + y = -2$

Use the graphing tool to graph the equation.



Answer:

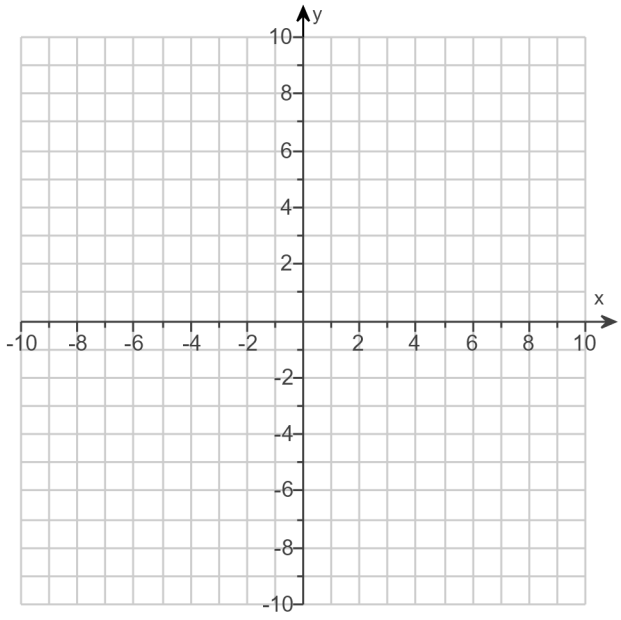


66.

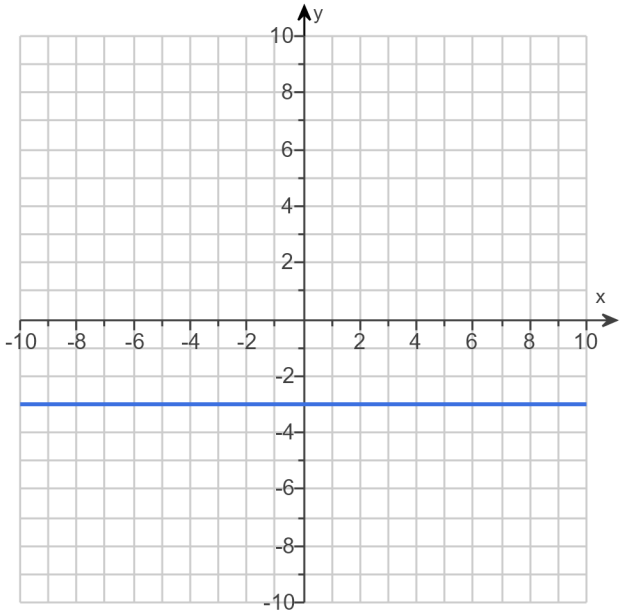
Graph the linear equation.

$y = -3$

Use the graphing tool to graph the linear equation.



Answer:

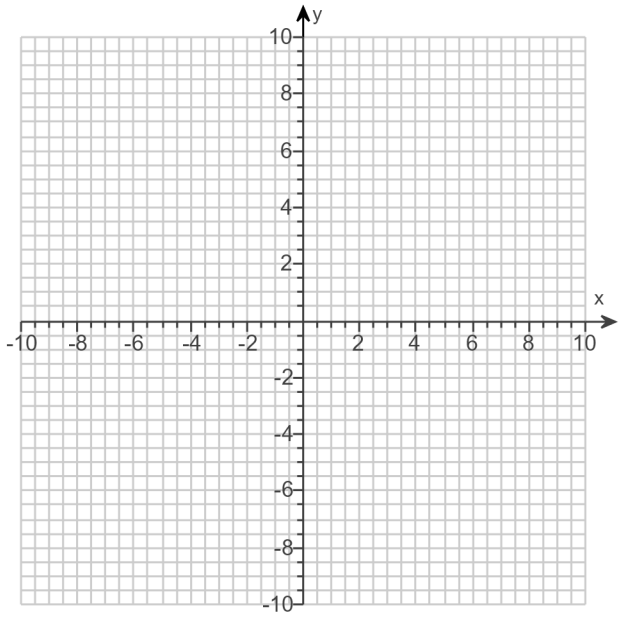


67.

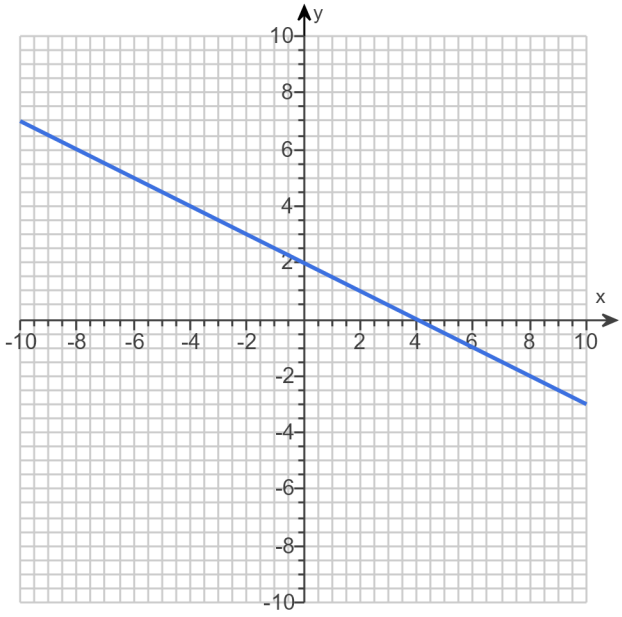
Graph the linear equation.

$$y = -\frac{1}{2}x + 2$$

Use the graphing tool to graph the linear equation.

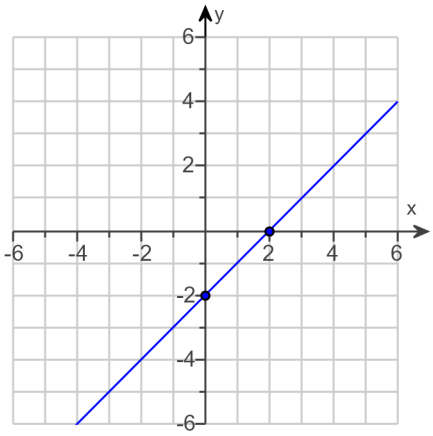


Answer:



68.

Identify the intercepts.



Identify all the x-intercepts.

(Type an ordered pair. Use a comma to separate answers as needed.)

Identify all the y-intercepts.

(Type an ordered pair. Use a comma to separate answers as needed.)

Answers (2,0)

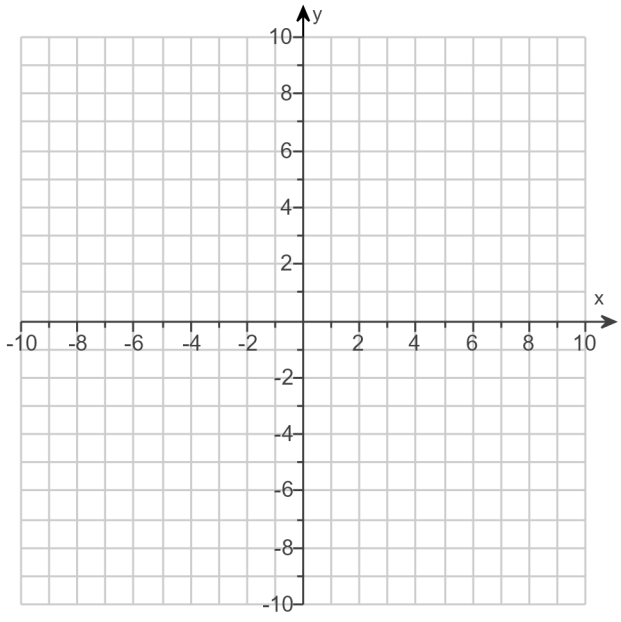
$(0, -2)$

69.

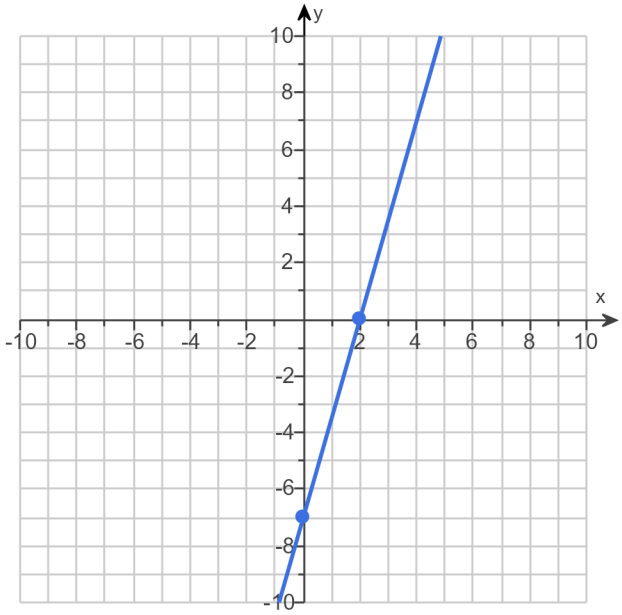
Plot the intercepts to graph the equation.

$7x - 2y = 14$

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.



Answer:



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

$(-10, 9)$ and $(1, -9)$

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.

Answer: A. The slope is $-\frac{18}{11}$. (Simplify your answer.)

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

(6,9) and (− 5,9)

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

- **A.** The slope is _____. (Type an integer or a simplified fraction.)
- **B.** The slope is undefined.

Answer: A. The slope is **0**. (Type an integer or a simplified fraction.)

---

72. Find the slope of the line.

$y = 3x - 3$

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

- **A.** The slope is _____.
- **B.** The slope is undefined.

Answer: A. The slope is **3**.

---

73. Find the slope of the line.

$9x + y = 2$

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

- **A.** The slope is _____.(Simplify your answer. Type an integer or a fraction.)
- **B.** The slope is undefined.

Answer: A. The slope is **− 9**.(Simplify your answer. Type an integer or a fraction.)

---

74. Find the slope of the line.

$9x - 8y = 72$

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.

Answer: A. The slope of the line is $\frac{9}{8}$. (Simplify your answer.)

---

75. Find the slope-intercept form of the line whose slope is 3 and that passes through the point $(-5,10)$.

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

Answer: $y = 3x + 25$

---

76. Find the value of $x^2 - 7x + 3$ for the given value of x.

$x = -3$

The value of the polynomial for $x = -3$ is ☐. (Simplify your answer.)

Answer: 33

---

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

$$\begin{cases} 2x - y = 5 \\ x + 7y = 10 \end{cases}$$

a. (3,1)
b. (4,3)

a. Is (3,1) a solution?

- ○ No
- ○ Yes

b. Is (4,3) a solution?

- ○ No
- ○ Yes

Answers Yes

No

---

78. Solve the system of equations using the substitution method.

$$\begin{cases} x + y = 3 \\ x = 2y \end{cases}$$

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

- ○ **A.** The solution of the system is ☐. (Type an ordered pair.)
- ○ **B.** There are infinitely many solutions; $\{(x,y) \mid x + y = 3\}$ or $\{(x,y) \mid x = 2y\}$.
- ○ **C.** There is no solution; {} or ∅.

Answer: A. The solution of the system is **(2,1)**. (Type an ordered pair.)

---

79. 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 ∅.

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

---

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

$$\begin{cases} 4x - y = 13 \\ 5x + y = 23 \end{cases}$$

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; $\{(x,y)|4x - y = 13\}$ or $\{(x,y)|5x + y = 23\}$.
- **C.** There is no solution; {} or ∅.

Answer: A. The solution is **(4,3)**. (Simplify your answer. Type an ordered pair.)

---

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

$$\begin{cases} x + 2y = -1 \\ 6x + 5y = -13 \end{cases}$$

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; $\{(x,y)|x + 2y = -1\}$ or $\{(x,y)|6x + 5y = -13\}$.
- **C.** There is no solution; {} or ∅.

Answer: A. The solution is **(−3,1)**. (Simplify your answer. Type an ordered pair.)

---

82. Two numbers total 33 and have a difference of 11. Find the two numbers.

The larger number is ☐, and the smaller number is ☐.

Answers 22

11

---

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

$(-8a^3b^3)(9ab^5)$

$(-8a^3b^3)(9ab^5) =$ ☐

Answer: $-72a^4b^8$

---

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

$(6z^{11})(-5z^7)(z^3)$

$(6z^{11})(-5z^7)(z^3) =$ ☐

Answer: $-30z^{21}$

---

85. Use the power rule to simplify the expression.

$(y^8)^3$

$(y^8)^3 =$ ☐

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

Answer: y^{24}

---

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

$(4m^3)^2$

$(4m^3)^2 =$ ☐

Answer: $16m^6$

---

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

$(-6a^4b^3c)^2$

$(-6a^4b^3c)^2 =$ ☐ (Type your answer using exponential notation.)

Answer: $36a^8b^6c^2$

---

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

$\left(\frac{-7x^2z^5}{y^5}\right)^3$

$\left(\frac{-7x^2z^5}{y^5}\right)^3 =$ ☐

Answer: $\frac{-343x^6z^{15}}{y^{15}}$

---

89. Simplify the expression.

$b^3b^4b^7$

$b^3b^4b^7 =$ ☐

Answer: b^{14}

---

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

$\frac{5x^4y^2z}{x^2yz}$

$\frac{5x^4y^2z}{x^2yz} =$ ☐

Answer: $5x^2y$

---

91. If $P(x) = x^2 + x + 5$, find $P(6)$.

$P(6) =$ ☐

Answer: 47

---

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

$5a^2 - 8ab + 9b^2 - 3a^2 - 3ab + 5b^2$

$5a^2 - 8ab + 9b^2 - 3a^2 - 3ab + 5b^2 =$ ☐

Answer: $2a^2 - 11ab + 14b^2$

---

93. Subtract.

$\left(9y^2 + 4y - 5\right) - (-9y + 6)$

$\left(9y^2 + 4y - 5\right) - (-9y + 6) =$ ☐ (Simplify your answer.)

Answer: $9y^2 + 13y - 11$

---

94. Add.

$\left(-7y^2 - 7y\right) + \left(8y^2 + 2y - 7\right)$

$\left(-7y^2 - 7y\right) + \left(8y^2 + 2y - 7\right) =$ ☐ (Do not factor.)

Answer: $y^2 - 5y - 7$

---

95. Multiply.

$(x + 7)\left(x^3 - 4x + 6\right)$

$(x + 7)\left(x^3 - 4x + 6\right) =$ ☐

Answer: $x^4 + 7x^3 - 4x^2 - 22x + 42$

---

96. Multiply vertically.

$\left(x^2 - 4x - 5\right)\left(7x^2 - 6x - 6\right)$

$\left(x^2 - 4x - 5\right)\left(7x^2 - 6x - 6\right) =$ ☐ (Simplify your answer.)

Answer: $7x^4 - 34x^3 - 17x^2 + 54x + 30$

---

97. Multiply.

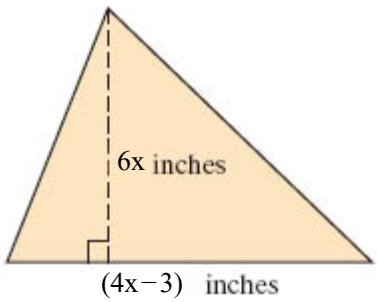
$-3x\left(x^2+7x-2\right)$

$-3x\left(x^2+7x-2\right) =$ ☐ (Simplify your answer.)

Answer: $-3x^3-21x^2+6x$

---

98. Find the area of the triangle.



☐ sq in.

Answer: $12x^2-9x$

---

99. Multiply using the FOIL method.

$4(y-8)(4y-1)$

$4(y-8)(4y-1) =$ ☐

Answer: $16y^2-132y+32$

---

100. Multiply.

$(x+6)^2$

$(x+6)^2 =$ ☐ (Simplify your answer.)

Answer: $x^2+12x+36$

---

101. Multiply.

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

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

Answer: a^2-49

---

102. Multiply the monomial and the polynomial.

$4x^4\left(2x^4 - 8x^2 + 5\right)$

$4x^4\left(2x^4 - 8x^2 + 5\right) =$ ☐

Answer: $8x^8 - 32x^6 + 20x^4$

---

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

$(d - 3c)^2$

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

- ○ **A.** $d^2 + 6dc + 9c^2$
- ○ **B.** $d^2 - 9c^2$
- ○ **C.** $d^2 - 6dc + 9c^2$
- ○ **D.** $d^2 + 9c^2$
- ○ **E.** none of these

Answer: C. $d^2 - 6dc + 9c^2$

---

104. Simplify the following expression.

5^{-2}

$5^{-2} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{1}{25}$

---

105. Simplify the following expression.

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

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

Answer: 27

---

106. Simplify the expression. Write the result using positive exponents only. Assume that all bases are not equal to 0.

$$\frac{y^{-1}}{y}$$

$\frac{y^{-1}}{y} =$ ☐

Answer: $\frac{1}{y^2}$

---

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

$$\frac{c^{-4}}{c^{-6}}$$

$\frac{c^{-4}}{c^{-6}} =$ ☐ (Use positive exponents only.)

Answer: c^2

---

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

$$\left(-4x^5y^{-4}\right)\left(5x^{-1}y^2\right)$$

$\left(-4x^5y^{-4}\right)\left(5x^{-1}y^2\right) =$ ☐ (Type exponential notation with positive exponents.)

Answer: $-\frac{20x^4}{y^2}$

---

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

$$\left(a^{-7}b^4\right)^{-4}$$

$\left(a^{-7}b^4\right)^{-4} =$ ☐ (Use positive exponents only.)

Answer: $\frac{a^{28}}{b^{16}}$

---

110. Write the number in scientific notation.

25,000

25,000 = ☐ (Use the multiplication symbol in the math palette as needed.)

Answer: 2.5×10^4

---

111. Write the number in scientific notation.

0.0000013

0.0000013 = ☐
(Use the multiplication symbol in the math palette as needed.)

Answer: 1.3×10^{-6}

---

112. Divide.

$$\frac{3p^7 + 9p^6}{3p}$$

$$\frac{3p^7 + 9p^6}{3p} = \square$$

Answer: $p^6 + 3p^5$

---

113. Find the GCF for the given list.

32, 36

The GCF is ☐.

Answer: 4

---

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

2x + 10

2x + 10 = ☐ (Type your answer in factored form.)

Answer: 2(x + 5)

---

115. Factor.

$8xy - 54x^2$

$8xy - 54x^2 =$ [ ] (Factor completely.)

Answer: $2x(4y - 27x)$

---

116. Factor the following polynomial.

$-12x^4y^5 - 20x^7y^4$

$-12x^4y^5 - 20x^7y^4 =$ [ ] (Factor completely.)

Answer: $4x^4y^4\left(-3y - 5x^3\right)$

---

117. Factor the trinomial completely.

$x^2 - 4x - 21$

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

- **A.** $x^2 - 4x - 21 =$ _____ (Type your answer in factored form.)
- **B.** The polynomial is prime.

Answer: A. $x^2 - 4x - 21 =$ **(x + 3)(x − 7)** (Type your answer in factored form.)

---

118. Factor the following binomial completely.

$121x^2 - 36y^2$

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

- **A.** $121x^2 - 36y^2 =$ _____ (Factor completely.)
- **B.** The polynomial is prime.

Answer: A. $121x^2 - 36y^2 =$ **(11x + 6y)(11x − 6y)** (Factor completely.)

---

119. Solve the equation.

$(x - 5)(x + 7) = 0$

$x =$ [ ]

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

Answer: $5, -7$

---

120. Solve the equation.

$5x(x-3)=0$

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

Answer: 3,0

---

121. Solve the equation.

$(2x+9)(3x-4)=0$

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

Answer: $-\frac{9}{2}, \frac{4}{3}$

---

122. Solve the equation.

$x^2-10x+16=0$

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

Answer: 8,2

---

123. Solve.

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

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

Answer: $-5,2$

---

124. Solve the equation.

$x^3-10x^2+16x=0$

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

Answer: 0,2,8

---

125. Solve.

$6x^2 + x - 7 = 0$

$x =$ ☐

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

Answer: $-\frac{7}{6}, 1$

---

126. Simplify the expression.

$$\frac{x+1}{x^2-4x-5}$$

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

○ **A.** $\frac{x+1}{x^2-4x-5} =$ _____ (Simplify your answer.)

○ **B.** The expression cannot be simplified.

Answer: A. $\frac{x+1}{x^2-4x-5} =$ $\frac{\mathbf{1}}{\mathbf{x-5}}$ (Simplify your answer.)

---

127. Find the product and simplify if possible.

$$\frac{8x}{y^2} \cdot \frac{9y}{5x}$$

$\frac{8x}{y^2} \cdot \frac{9y}{5x} =$ ☐ (Simplify your answer. Use positive exponents only.)

Answer: $\frac{72}{5y}$

---

128. Find the product and simplify if possible.

$$\frac{x^2-49}{x^2-3x-28} \cdot \frac{x+4}{x}$$

$\frac{x^2-49}{x^2-3x-28} \cdot \frac{x+4}{x} =$ ☐ (Simplify your answer.)

Answer: $\frac{x+7}{x}$

---

129. Find the quotient and simplify the result.

$$\frac{18x^3}{y^2} \div \frac{3x^3y^2}{2}$$

$\frac{18x^3}{y^2} \div \frac{3x^3y^2}{2} =$ ☐ (Simplify your answer.)

Answer: $\frac{12}{y^4}$

---

130. Add the rational expressions.

$$\frac{5m}{4n} + \frac{7m}{4n}$$

$\frac{5m}{4n} + \frac{7m}{4n} =$ ☐ (Simplify your answer.)

Answer: $\frac{3m}{n}$

---

131. Subtract the rational expressions.

$$\frac{9x-2}{x^2-11x-12} - \frac{8x-3}{x^2-11x-12}$$

$\frac{9x-2}{x^2-11x-12} - \frac{8x-3}{x^2-11x-12} =$ ☐ (Simplify your answer.)

Answer: $\frac{1}{x-12}$

---

132. Solve the equation.

$$3 - \frac{1}{z} = 5$$

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.

Answer: A. The solution is $-\frac{1}{2}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

---

133. Solve the equation.

$$\frac{v - 8}{5} = \frac{v}{9}$$

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.

Answer: A. The solution is 18.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

---

134. Solve the equation.

$$\frac{3}{y} + \frac{3}{2} = \frac{9}{2y}$$

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

- **A.** y = _____ (Use a comma to separate answers if needed.)
- **B.** There is no solution.

Answer: A. y = 1 (Use a comma to separate answers if needed.)

---

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

$\sqrt{36x^6}$

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

- **A.** $\sqrt{36x^6}$ = _____
  (Type an exact answer, using radicals as needed.)
- **B.** The square root is not a real number.

Answer: A. $\sqrt{36x^6}$ = **$6x^3$** (Type an exact answer, using radicals as needed.)

---

136. Find the cube root.

$\sqrt[3]{1}$

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

- **A.** $\sqrt[3]{1}$ = _____
- **B.** The cube root is not a real number.

Answer: A. $\sqrt[3]{1}$ = **1**

---

137. Simplify the radical.

$\sqrt{\frac{36}{25}}$

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

- **A.** $\sqrt{\frac{36}{25}}$ = _____ (Type an integer or a simplified fraction.)
- **B.** The square root is not a real number.

Answer: A. $\sqrt{\frac{36}{25}}$ = **$\frac{6}{5}$** (Type an integer or a simplified fraction.)

138.

Identify the domain and then graph the function, using the table to the right.

$f(x) = \sqrt{x - 6}$

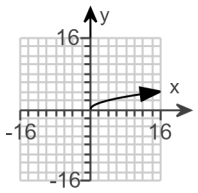
x	f(x)
6	
7	
15	
22	

The domain of the function f(x) is [ ].
(Type your answer in interval notation.)

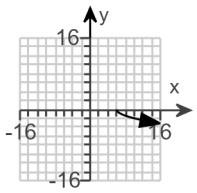
Complete the table to the right.

Graph the function. Choose the correct graph to the right.

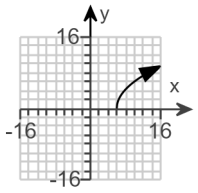
A.



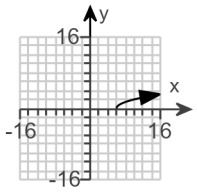
B.



C.



D.



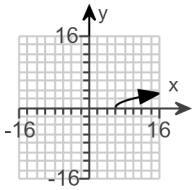
Answers [6,∞)

0

1

3

4



D.

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

$$\left(\frac{1}{256}\right)^{\frac{1}{4}}$$

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

○ **A.** $\left(\frac{1}{256}\right)^{\frac{1}{4}} =$ _____
(Simplify your answer. Type an exact answer, using radicals as needed.)

○ **B.** The answer is not a real number.

Answer: A. $\left(\frac{1}{256}\right)^{\frac{1}{4}} =$ **$\frac{1}{4}$** (Simplify your answer. Type an exact answer, using radicals as needed.)

---

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

$3125^{4/5}$

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

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

○ **B.** The answer is not a real number.

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

---

141. Simplify by factoring.

$\sqrt{54}$

$\sqrt{54} =$ ☐
(Type an exact answer, using radicals as needed.)

Answer: $3\sqrt{6}$

---

142. Simplify. Assume that the variables represent nonnegative real numbers.

$\sqrt{121a^4b^3}$

$\sqrt{121a^4b^3} =$ ☐ (Type an exact answer, using radicals as needed.)

Answer: $11a^2b\sqrt{b}$

---

143. Solve.

$\sqrt{x-14} = 4$

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 ∅.

Answer: A. The solution(s) is(are) x = **30**. (Use a comma to separate answers as needed.)

---

144. Solve.

$\sqrt{x+4} = \sqrt{2x-1}$

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

- **A.** x = _____ (Simplify your answer. Use a comma to separate answers as needed.)
- **B.** There is no solution.

Answer: A. x = **5** (Simplify your answer. Use a comma to separate answers as needed.)

---

145. Multiply.

$(7+6i)(8+i)$

$(7+6i)(8+i) =$ ☐
(Simplify your answer. Type your answer in the form a + bi.)

Answer: $50+55i$

---

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

$(x+7)^2 = 16$

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

Answer: $-3, -11$

---

147. The area of a square room is 169 square feet. Find the dimensions of the room.

The side of the room is ☐ feet long.

Answer: 13

---

148. Evaluate $\sqrt{b^2 - 4ac}$ for $a = 2$, $b = 1$, and $c = -3$.

$\sqrt{b^2 - 4ac} =$ ☐
(Simplify your answer. Type an exact answer, using radicals as needed.)

Answer: 5

---

149. Use the quadratic formula to solve the equation.

$m^2 + 4m + 3 = 0$

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

Answer: $-3, -1$

---

150. Use the quadratic formula to solve the equation.

$x^2 + 8x + 25 = 0$

The solution(s) is/are $x =$ ☐.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)

Answer: $-4 + 3i, -4 - 3i$