Student: _____	**Instructor:** Alfredo Alvarez	**Assignment:**
Date: _____	**Course:** Math 0410 Spring 2018	MATHFIESTAPRETSI150MD

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

   $x = 2$ and $y = -8$

   $2x - y =$ [ ]

   Answer: 12

---

2. Simplify.

   $8 + 4 \cdot 9 - 11$

   $8 + 4 \cdot 9 - 11 =$ [ ]

   Answer: 33

---

3. Simplify.

   $8(-12) \div [2(-8) - 3(-5)]$

   The answer is [ ].

   Answer: 96

---

4. Evaluate the following expression for $x = -3$ and $y = 4$.

   $x^2 - y$

   $x^2 - y =$ [ ]

   Answer: 5

---

5. Solve. Check your solution.

   $d - 7 = -5$

   The solution is $d =$ [ ].

   Answer: 2

---

6. Solve.

   $\frac{n}{8} = -4$

   The solution is $n =$ [ ].

   Answer: -32

---

7. Simplify the expression by combining like terms.

$3x - 10x$

$3x - 10x =$ ☐

Answer: $-7x$

---

8. Multiply.

$-6(3s + 2)$

$-6(3s + 2) =$ ☐

Answer: $-18s - 12$

---

9. Simplify the expression.

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

$4y - 2(y - 3) + 4 =$ ☐

Answer: $2y + 10$

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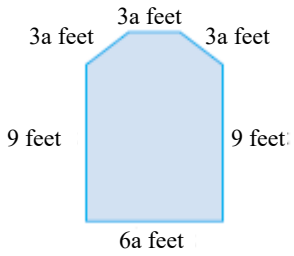
10. Find the perimeter of the figure.



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

Answer: $15a + 18$

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11. Find the perimeter of the figure.

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

Answer: $-40x + 65$

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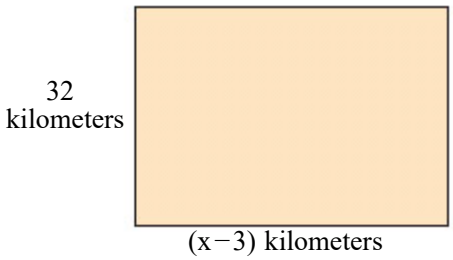
12. Find the area of the rectangle.



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

Answer: 32x − 96

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13. A decorator wishes to put a wallpaper border around a rectangular room that measures 22 feet by 30 feet. Find the room's perimeter. Use P = 2L + 2W.

The perimeter of the room is [ ] feet.

Answer: 104

---

14. Solve and check the solution.

$4(2x - 4) = 9x$

x = [ ]

Answer: − 16

---

15. Solve the equation.

$-3(x + 9) - 43 = 5 - 51$

The answer is x = [ ].

Answer: − 8

---

16. Solve the following equation.

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

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

Answer: − 21

---

17. Solve the equation.

$8x - 1 = 9x + 8$

$x =$ ☐

Answer: -9

---

18. Solve the equation.

$-18x - 20 = -14x + 100$

$x =$ ☐

Answer: -30

---

19. Solve the equation.

$4(y - 3) = 2y - 12$

$y =$ ☐

Answer: 0

---

20. Solve the equation.

$3t - 7 = 4(t + 6)$

$t =$ ☐

Answer: -31

---

21. Solve the equation.

$2(5c - 1) - 3 = 8c + 9$

$c =$ ☐

Answer: 7

---

22. Solve the equation.

$5n + 55 = 60$

$n =$ ☐

Answer: 1

---

23. During the women's basketball championship game, team A scored 6 more points than team B. Together, both teams scored a total of 160 points. How many points did the Champion team A score during this game?

[ ] points

Answer: 83

---

24. Multiply. Write the product in simplest form.

$$-\frac{3}{2} \cdot \frac{5}{6}$$

$-\frac{3}{2} \cdot \frac{5}{6} =$ [ ]

Answer: $-\frac{5}{4}$

---

25. Multiply.

$$\frac{7}{6} \cdot \frac{1}{2} \cdot \frac{3}{14}$$

$\frac{7}{6} \cdot \frac{1}{2} \cdot \frac{3}{14} =$ [ ] (Type a simplified fraction.)

Answer: $\frac{1}{8}$

---

26. Evaluate the following expression.

$$\left(-\frac{3}{7}\right)^2$$

$\left(-\frac{3}{7}\right)^2 =$ [ ] (Simplify your answer. Type an integer or a fraction.)

Answer: $\frac{9}{49}$

---

27. Divide.

$$\frac{7}{18} \div \frac{31}{36}$$

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

○ **A.** $\frac{7}{18} \div \frac{31}{36} =$ _____ (Type an integer or a simplified fraction.)

○ **B.** The answer is undefined.

Answer: A. $\frac{7}{18} \div \frac{31}{36} = \frac{\mathbf{14}}{\mathbf{31}}$ (Type an integer or a simplified fraction.)

---

28. Perform the indicated operation.

$$\frac{25x^2}{21y} \div \frac{15x}{49y}$$

$\frac{25x^2}{21y} \div \frac{15x}{49y} =$ [ ]
(Simplify your answer. Use integers or fractions for any numbers in the expression.)

Answer: $\frac{35x}{9}$

---

29. Find $\frac{3}{4}$ of 28. Write the answer in simplest form.

$\frac{3}{4}$ of 28 is [ ]. (Simplify your answer.)

Answer: 21

---

30. Add and simplify.

$$\frac{4}{9} + \frac{2}{9}$$

$\frac{4}{9} + \frac{2}{9} =$ [ ] (Type an integer or a simplified fraction.)

Answer: $\frac{2}{3}$

---

31. Add and simplify.

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

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

Answer: $\frac{3}{4}$

---

32. Subtract.

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

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

Answer: $-\frac{1}{36}$

---

33. Simplify the complex fraction.

$$\frac{\frac{2}{9}}{\frac{2}{7}}$$

$\frac{\frac{2}{9}}{\frac{2}{7}}=$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{7}{9}$

---

34. Solve the equation and check the solution.

$-35=\frac{5}{7}x$

$x=$ ☐

Answer: -49

---

35. Solve the equation.

$$\frac{x}{5} = \frac{x}{6} - 4$$

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

Answer: -120

---

36. Solve the equation.

$$\frac{8}{9} - \frac{z}{8} = \frac{1}{72}$$

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

Answer: 7

---

37. Solve.

$$\frac{x}{2} + 5 = \frac{1}{2}$$

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

Answer: -9

---

38. Solve the equation.

$$\frac{a}{6} + 5 = \frac{a}{5} + 8$$

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

Answer: -90

---

39. Multiply.

$$-7.022 \times 1000$$

-7.022×1000 = [ ] (Type an integer or a decimal.)

Answer: -7022

---

40. Divide.

$$\frac{93.949}{100}$$

$\frac{93.949}{100}$ = ☐

Answer: 0.93949

---

41. Solve.

$3.3x - 69 = 1.7x + 3$

x = ☐ (Type an integer or a decimal.)

Answer: 45

---

42. Solve the proportion.

$$\frac{3}{4} = \frac{x}{12}$$

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

Answer: 9

---

43. A 10-oz iced tea at a certain restaurant has 90 calories. How many calories are there in a 17-oz iced tea?

The 17-oz iced tea has ☐ calories.

Answer: 153

---

44. Write the fraction as a percent.

$$\frac{4}{25}$$

$\frac{4}{25}$ = ☐ % (Simplify your answer.)

Answer: 16

---

45. A stereo normally priced at $749 is on sale for 45% off. Find the discount and the sale price.

The discount is $.

The sale price is $.

Answers 337.05

411.95

---

46. A company borrows $58,000 for 2 years at a simple interest rate of 5.5%. 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 6,380

64,380

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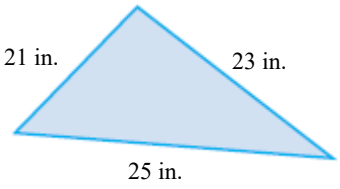
47. Find the perimeter of the following figure.



The perimeter is (1)

(1) sq. in.
in.

Answers 69

(1) in.

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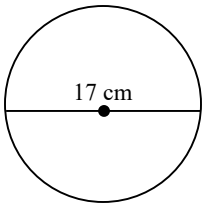
48. Find the circumference of the circle. Give the exact circumference and then an approximation. Use $\pi \approx 3.14$.



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) ○ centimeters.
○ square centimeters.

(2) ○ feet.
○ centimeters.
○ meters.

Answers 17π

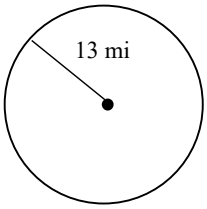
(1) centimeters.

53.38

(2) centimeters.

---

49. 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 26π

(1) miles.

81.64

(2) miles.

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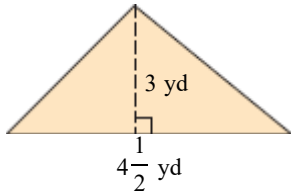
50. Find the area of the geometric figure.



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

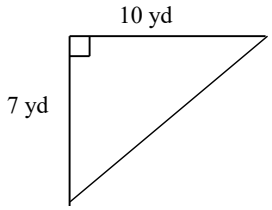
(1) ○ yards
○ square yards
○ cubic yards

Answers $6\frac{3}{4}$

(1) square yards

---

51. 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 35

(1) square yards.

---

52. A pizzeria will bake and deliver a round pizza with a 16-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 64π

(1) square inches

200.96

(2) square inches

---

53. A $16\frac{1}{2}$-foot by 6-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 99

(1) sq ft.

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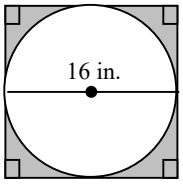
54. Find the area of the shaded region. Use the approximation 3.14 for π.



The area of the shaded region is approximately ____ (1) ____
(Simplify your answer. Type an integer or a decimal.)

(1) ○ cu in. ○ sq in. ○ in.

Answers 55.04

(1) sq in.

---

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

176°F to degrees Celsius

$176^\circ F =$ [ ] $^\circ C$
(Round to the nearest tenth as needed.)

Answer: 80

---

56. Solve the equation for x.

$-5(x+6)-4=-34$

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.)

---

57. Solve the equation for y.

$9x+y=9$

y = [ ]

Answer: $9-9x$

---

58. Solve the formula for the specified variable.

$Q = R + Rst$ for t

t = [ ]

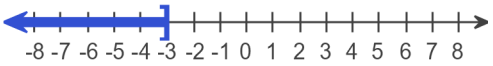
Answer: $\frac{Q-R}{Rs}$

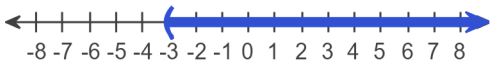
---

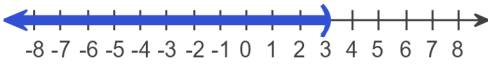
59. Solve the inequality. Graph the solution set and write it in interval notation.

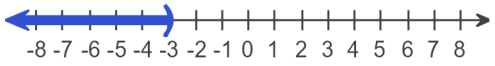
$2x < -6$

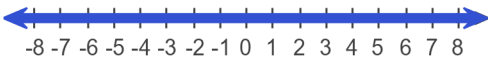
Choose the correct graph below.

A. 

B. 

C. 

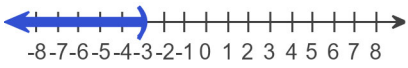
D. 

E. 

F. 

The solution to the inequality $2x < -6$ is [ ].
(Type your answer in interval notation.)

Answers

D. 

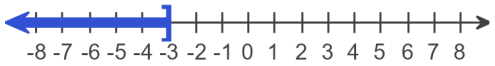
$(-\infty, -3)$

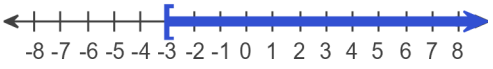
60. Solve the inequality. Graph the solution set and write it in interval notation.

$-7x \leq 21$

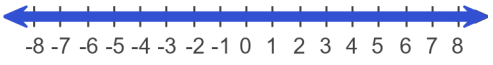
Choose the correct graph below.

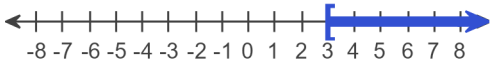
A. 

B. 

C. 

D. 

E. 

F. 

The solution to the inequality $-7x \leq 21$ is [ ].
(Type your answer in interval notation.)

Answers

C. 

$[-3, \infty)$

61. Solve the inequality.

$3x - 4 < 9x + 14$

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

Answer: $(-3, \infty)$

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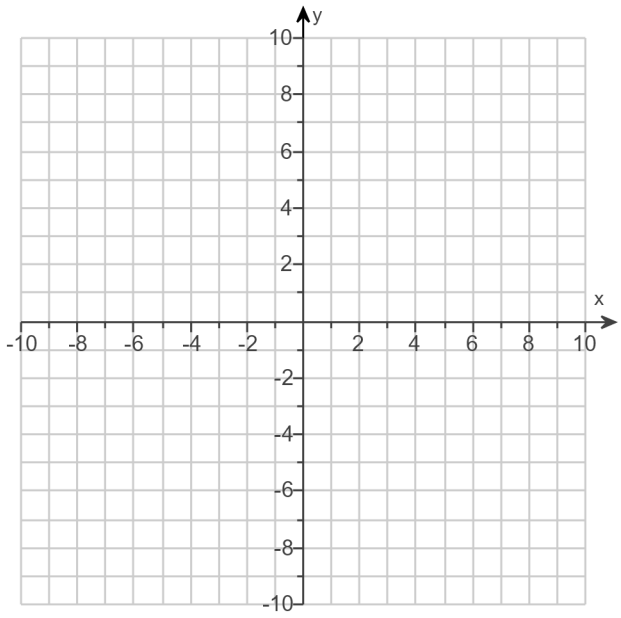
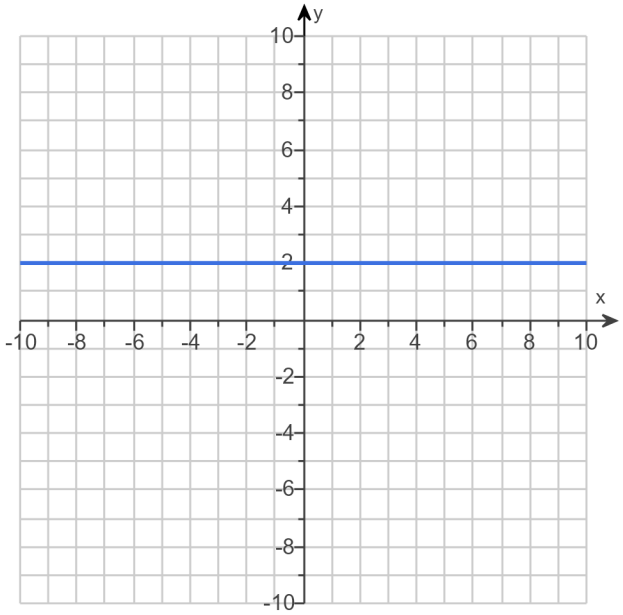
62. Graph the linear equation.

$y = 2$

Use the graphing tool to graph the linear equation.



Answer:

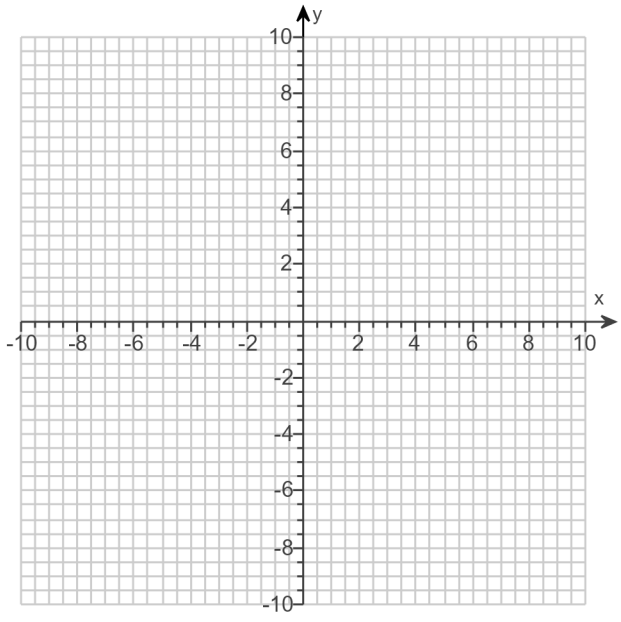


63.

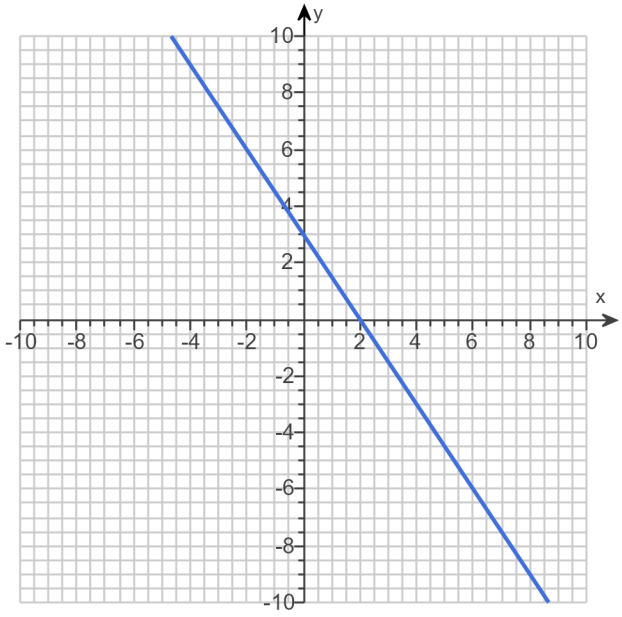
Graph the linear equation.

$$y = -\frac{3}{2}x + 3$$

Use the graphing tool to graph the linear equation.

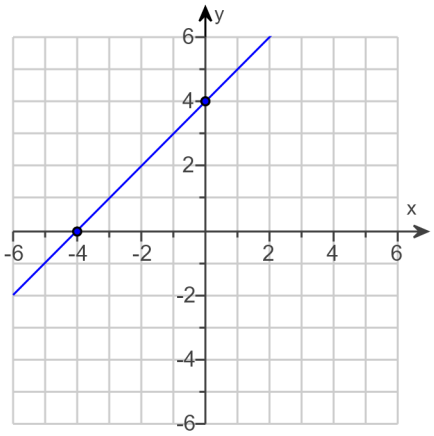


Answer:



64.

Identify the intercepts.



Answers $(-4,0)$

$(0,4)$

Identify all the x-intercepts.

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

Identify all the y-intercepts.

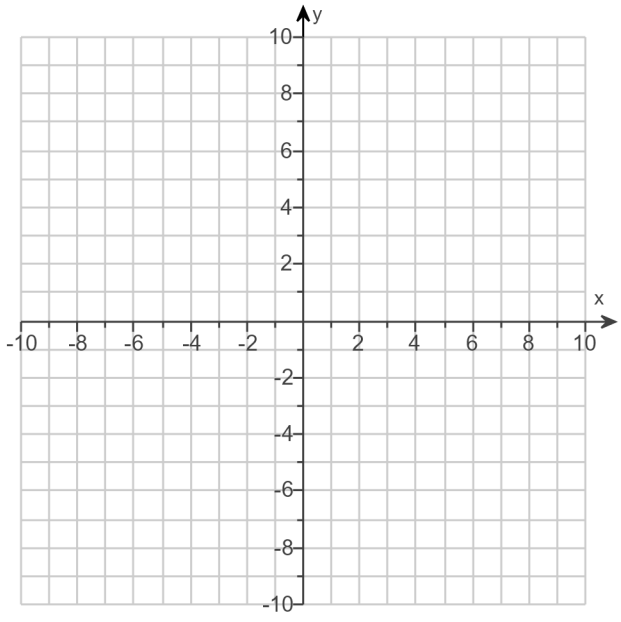
(Type an ordered pair. Use a comma to separate answers as needed.)

65.

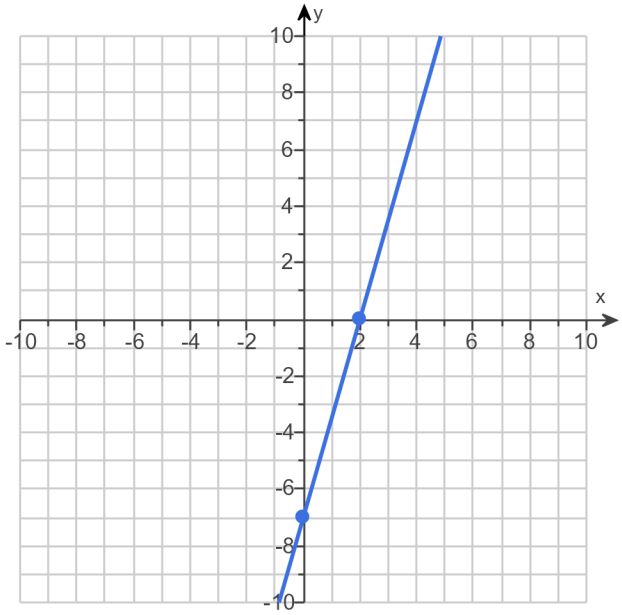
Plot the intercepts to graph the equation.

$7x - 2y = 14$

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:



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

$(7, -5)$ and $(-8, 6)$

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 $-\frac{11}{15}$. (Simplify your answer.)

67. Find the slope of the line.

$y = -2x + 9$

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 **−2**.

---

68. Find the slope of the line.

$7x - 9y = 63$

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 $\frac{7}{9}$. (Simplify your answer.)

---

69. Solve the following equation for y.

$y - 7 = 3(x - (-4))$

$y =$ _____ (Simplify your answer.)

Answer: $3x + 19$

---

70. Find the slope-intercept form of the line whose slope is 4 and that passes through the point $(-2,6)$.

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

Answer: $y = 4x + 14$

---

71. Find the value of $x^2 - 4x + 5$ for the given value of x.

$x = -3$

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

Answer: 26

---

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

$$\begin{cases} 2x - y = 4 \\ x + 9y = 21 \end{cases}$$

a. (5,6)
b. (3,2)

a. Is (5,6) a solution?

- Yes
- No

b. Is (3,2) a solution?

- No
- Yes

Answers No

Yes

---

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

$$\begin{cases} x + y = 8 \\ x = 3y \end{cases}$$

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; $\{(x,y)\,|\,x + y = 8\}$ or $\{(x,y)\,|\,x = 3y\}$.
- **C.** There is no solution; {} or ∅.

Answer: A. The solution of the system is **(6,2)**. (Type an ordered pair.)

---

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

$$\begin{cases} 5x - y = 15 \\ 6x + y = 29 \end{cases}$$

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; $\{(x,y)\,|\,5x - y = 15\}$ or $\{(x,y)\,|\,6x + y = 29\}$.
- **C.** There is no solution; {} or ∅.

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

---

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

$$\begin{cases} x + 2y = 6 \\ 2x + 5y = 16 \end{cases}$$

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; $\{(x,y)|x + 2y = 6\}$ or $\{(x,y)|2x + 5y = 16\}$.
- **C.** There is no solution; {} or ∅.

Answer: A. The solution is **(−2,4)**. (Simplify your answer. Type an ordered pair.)

---

76. 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

---

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

$$(-9m^6n^6)(4mn^2)$$

$(-9m^6n^6)(4mn^2) =$ _____

Answer: $-36m^7n^8$

---

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

$$(4z^{11})(-6z^7)(z^3)$$

$(4z^{11})(-6z^7)(z^3) =$ _____

Answer: $-24z^{21}$

---

79. Use the power rule to simplify the expression.

$$(z^7)^8$$

$(z^7)^8 =$ _____

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

Answer: z^{56}

---

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

$(2q^9)^5$

$(2q^9)^5 =$ ☐

Answer: $32q^{45}$

---

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

$(-7a^3b^5c)^2$

$(-7a^3b^5c)^2 =$ ☐ (Type your answer using exponential notation.)

Answer: $49a^6b^{10}c^2$

---

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

$\left(\frac{6xz^2}{y^5}\right)^2$

$\left(\frac{6xz^2}{y^5}\right)^2 =$ ☐

Answer: $\frac{36x^2z^4}{y^{10}}$

---

83. Simplify the expression.

$a^3a^4a^6$

$a^3a^4a^6 =$ ☐

Answer: a^{13}

---

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

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

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

Answer: $9x^2y$

---

85. If $P(x) = x^2 + x + 3$, find P(6).

$P(6) =$ [ ]

Answer: 45

---

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

$$-7a^2 - 6ab + 7b^2 - 3a^2 - 6ab + 3b^2$$

$-7a^2 - 6ab + 7b^2 - 3a^2 - 6ab + 3b^2 =$ [ ]

Answer: $-10a^2 - 12ab + 10b^2$

---

87. Subtract.

$$\left(6y^2 + 6y - 4\right) - (-9y + 3)$$

$\left(6y^2 + 6y - 4\right) - (-9y + 3) =$ [ ] (Simplify your answer.)

Answer: $6y^2 + 15y - 7$

---

88. Add.

$$\left(-4y^2 - 7y\right) + \left(6y^2 + y - 3\right)$$

$\left(-4y^2 - 7y\right) + \left(6y^2 + y - 3\right) =$ [ ] (Do not factor.)

Answer: $2y^2 - 6y - 3$

---

89. Multiply.

$(x+7)(x^3-5x+6)$

$(x+7)(x^3-5x+6) =$ ☐

Answer: $x^4+7x^3-5x^2-29x+42$

---

90. Multiply vertically.

$(x^2+5x-4)(3x^2-9x+4)$

$(x^2+5x-4)(3x^2-9x+4) =$ ☐ (Simplify your answer.)

Answer: $3x^4+6x^3-53x^2+56x-16$

---

91. Multiply.

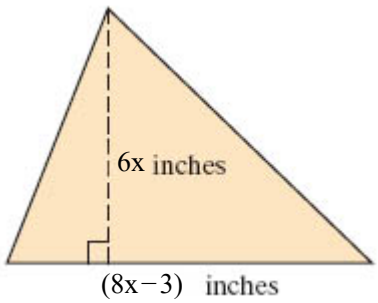
$-3x(x^2+7x-4)$

$-3x(x^2+7x-4) =$ ☐ (Simplify your answer.)

Answer: $-3x^3-21x^2+12x$

---

92. Find the area of the triangle.

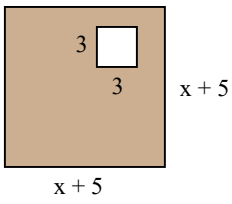


☐ sq in.

Answer: $24x^2-9x$

---

93. Write a polynomial that describes the area of the shaded region.



The area is ☐.

Answer: $x^2 + 10x + 16$

---

94. Multiply using the FOIL method.

$6(y - 3)(8y - 1)$

$6(y - 3)(8y - 1) =$ ☐

Answer: $48y^2 - 150y + 18$

---

95. Multiply.

$(x + 7)^2$

$(x + 7)^2 =$ ☐ (Simplify your answer.)

Answer: $x^2 + 14x + 49$

---

96. Multiply.

$(a - 6)(a + 6)$

$(a - 6)(a + 6) =$ ☐ (Simplify your answer.)

Answer: $a^2 - 36$

---

97. Multiply the monomial and the polynomial.

$7x^2\left(2x^3 - 3x^2 + 8\right)$

$7x^2\left(2x^3 - 3x^2 + 8\right) =$ ☐

Answer: $14x^5 - 21x^4 + 56x^2$

---

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

$(5b - 2c)^2$

Choose the expression equivalent to $(5b - 2c)^2$.

- **A.** $25b^2 + 4c^2$
- **B.** $25b^2 + 20bc + 4c^2$
- **C.** $25b^2 - 4c^2$
- **D.** $25b^2 - 20bc + 4c^2$
- **E.** none of these

Answer: D. $25b^2 - 20bc + 4c^2$

---

99. Simplify the following expression.

5^{-3}

$5^{-3} =$ ☐ (Type an integer or a simplified fraction.)

Answer: $\frac{1}{125}$

---

100. 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

---

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

$\frac{y^{-4}}{y}$

$\frac{y^{-4}}{y} =$ ☐

Answer: $\frac{1}{y^5}$

---

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

$$\frac{k^{-1}}{k^{-9}}$$

$\frac{k^{-1}}{k^{-9}} =$ [ ] (Use positive exponents only.)

Answer: k^8

---

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

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

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

Answer: $-\frac{8x^3}{y^2}$

---

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

$$\left(a^{-3}b^2\right)^{-4}$$

$\left(a^{-3}b^2\right)^{-4} =$ [ ] (Use positive exponents only.)

Answer: $\frac{a^{12}}{b^8}$

---

105. Write the number in scientific notation.

77,000

77,000 = [ ] (Use the multiplication symbol in the math palette as needed.)

Answer: 7.7×10^4

---

106. Write the number in scientific notation.

0.00000193

0.00000193 = [ ]
(Use the multiplication symbol in the math palette as needed.)

Answer: 1.93×10^{-6}

---

107. Divide.

$$\frac{15p^6 + 20p^5}{5p}$$

$\frac{15p^6 + 20p^5}{5p} =$ ☐

Answer: $3p^5 + 4p^4$

---

108. Find the GCF for the given list.

27, 45

The GCF is ☐.

Answer: 9

---

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

$5x + 30$

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

Answer: $5(x + 6)$

---

110. Factor.

$16xy - 54x^2$

$16xy - 54x^2 =$ ☐ (Factor completely.)

Answer: $2x(8y - 27x)$

---

111. Factor the trinomial completely.

$x^2 - 2x - 63$

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

- ○ **A.** $x^2 - 2x - 63 =$ _____ (Type your answer in factored form.)
- ○ **B.** The polynomial is prime.

Answer: A. $x^2 - 2x - 63 =$ **$(x + 7)(x - 9)$** (Type your answer in factored form.)

---

112. Factor the following binomial completely.

$196x^2 - 81y^2$

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

- **A.** $196x^2 - 81y^2 =$ _____ (Factor completely.)
- **B.** The polynomial is prime.

Answer: A. $196x^2 - 81y^2 =$ **$(14x + 9y)(14x - 9y)$** (Factor completely.)

---

113. Solve the equation.

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

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

Answer: 3, − 2

---

114. Solve the equation.

$3x(x - 9) = 0$

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

Answer: 9,0

---

115. Solve the equation.

$(6x + 7)(2x - 3) = 0$

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

Answer: $-\frac{7}{6}, \frac{3}{2}$

---

116. Solve the equation.

$x^2 - 11x + 24 = 0$

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

Answer: 8,3

---

117. Solve.

$x^2 + 2x - 15 = 0$

x = ☐

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

Answer: $-5,3$

---

118. 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

---

119. Solve.

$2x^2 - 9x - 35 = 0$

x = ☐

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

Answer: $-\frac{5}{2},7$

---

120. Find the domain of the rational function.

$$C(x) = \frac{x+7}{x^2-16}$$

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

- **A.** The domain is $\{x \mid x \text{ is a real number and } x \neq$ ☐$\}$.
  (Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)
- **B.** The domain is {x | x is a real number}.

Answer: A. The domain is $\{x \mid x \text{ is a real number and } x \neq$ **−4,4** $\}$.
(Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)

---

121. Simplify the expression.

$$\frac{x+7}{x^2-3x-70}$$

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

○ **A.** $\frac{x+7}{x^2-3x-70} =$ _____ (Simplify your answer.)

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

Answer: A. $\frac{x+7}{x^2-3x-70} =$ $\frac{\mathbf{1}}{\mathbf{x-10}}$ (Simplify your answer.)

---

122. Find the product and simplify if possible.

$$\frac{5x}{y^2} \cdot \frac{6y}{7x}$$

$\frac{5x}{y^2} \cdot \frac{6y}{7x} =$ [ ] (Simplify your answer. Use positive exponents only.)

Answer: $\frac{30}{7y}$

---

123. Find the product and simplify if possible.

$$\frac{x^2-64}{x^2-4x-32} \cdot \frac{x+4}{x}$$

$\frac{x^2-64}{x^2-4x-32} \cdot \frac{x+4}{x} =$ [ ] (Simplify your answer.)

Answer: $\frac{x+8}{x}$

---

124. Find the quotient and simplify the result.

$$\frac{16x^2}{y^5} \div \frac{8x^2y^5}{9}$$

$\frac{16x^2}{y^5} \div \frac{8x^2y^5}{9} =$ ☐ (Simplify your answer.)

Answer: $\frac{18}{y^{10}}$

---

125. Add the rational expressions.

$$\frac{5m}{2n} + \frac{7m}{2n}$$

$\frac{5m}{2n} + \frac{7m}{2n} =$ ☐ (Simplify your answer.)

Answer: $\frac{6m}{n}$

---

126. Subtract the rational expressions.

$$\frac{7x+9}{x^2-8x+12} - \frac{6x+15}{x^2-8x+12}$$

$\frac{7x+9}{x^2-8x+12} - \frac{6x+15}{x^2-8x+12} =$ ☐ (Simplify your answer.)

Answer: $\frac{1}{x-2}$

---

127. Solve the equation.

$$2 - \frac{5}{a} = 9$$

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 $-\frac{5}{7}$.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

---

128. Solve the equation.

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

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 9.
(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

---

129. Solve the equation.

$$\frac{9}{y} + \frac{2}{7} = \frac{7}{7y}$$

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 = −28 (Use a comma to separate answers if needed.)

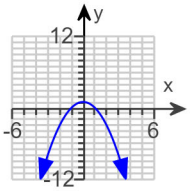
---

130. Graph the function.

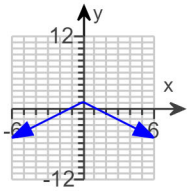
$f(x) = x^2 - 1$

Choose the correct graph below.

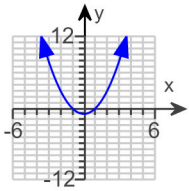
A.



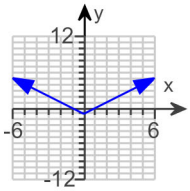
B.



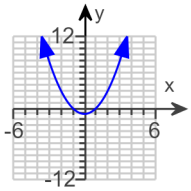
C.



D.



Answer:



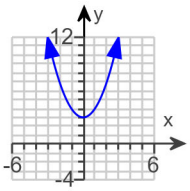
C.

131. Graph the function.

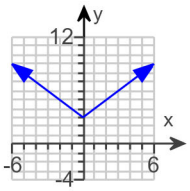
$h(x) = |x| + 3$

Choose the correct graph below.

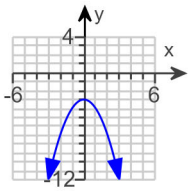
A.



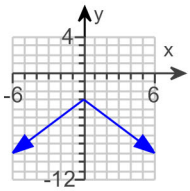
B.



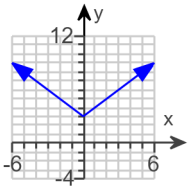
C.



D.



Answer:



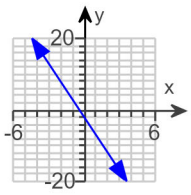
B.

132. Graph the function.

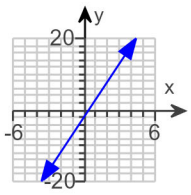
$f(x) = 5x - 2$

Choose the correct graph below.

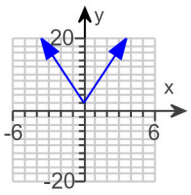
A.



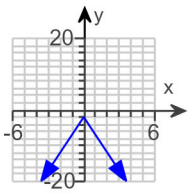
B.



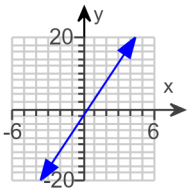
C.



D.



Answer:



B.

---

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

$\sqrt{25x^6}$

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

A. $\sqrt{25x^6}$ = _____
(Type an exact answer, using radicals as needed.)

B. The square root is not a real number.

Answer: A. $\sqrt{25x^6}$ = **$5x^3$** (Type an exact answer, using radicals as needed.)

---

134. 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.

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

---

135. Simplify the radical.

$$\sqrt{\frac{49}{64}}$$

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

- **A.** $\sqrt{\frac{49}{64}} =$ _____ (Type an integer or a simplified fraction.)
- **B.** The square root is not a real number.

Answer: A. $\sqrt{\frac{49}{64}} = \frac{7}{8}$ (Type an integer or a simplified fraction.)

136.

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

$f(x) = \sqrt{x - 11}$

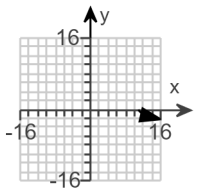
x	f(x)
11	
12	
15	
20	

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

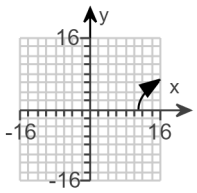
Complete the table to the right.

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

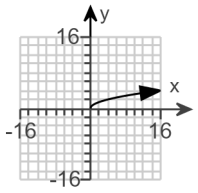
A.



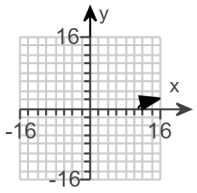
B.



C.



D.



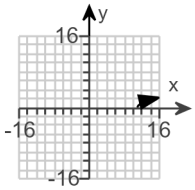
Answers [11,∞)

0

1

2

3



D.

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

$$\left(\frac{81}{625}\right)^{\frac{1}{4}}$$

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

- **A.** $\left(\frac{81}{625}\right)^{\frac{1}{4}} =$ _____
  (Simplify your answer. Type an exact answer, using radicals as needed.)
- **B.** The answer is not a real number.

Answer: A. $\left(\frac{81}{625}\right)^{\frac{1}{4}} = \frac{3}{5}$ (Simplify your answer. Type an exact answer, using radicals as needed.)

---

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

$$1024^{3/5}$$

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

- **A.** $1024^{3/5} =$ _____
  (Simplify your answer. Type an exact answer, using radicals as needed.)
- **B.** The answer is not a real number.

Answer: A. $1024^{3/5} =$ **64** (Simplify your answer. Type an exact answer, using radicals as needed.)

---

139. Simplify by factoring.

$\sqrt{50}$

$\sqrt{50} =$ ☐
(Type an exact answer, using radicals as needed.)

Answer: $5\sqrt{2}$

---

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

$$\sqrt{9a^2b^7}$$

$\sqrt{9a^2b^7} =$ ☐ (Type an exact answer, using radicals as needed.)

Answer: $3ab^3\sqrt{b}$

---

141. Solve.

$\sqrt{x-9} = 4$

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 = **25**. (Use a comma to separate answers as needed.)

---

142. Solve.

$\sqrt{x+8} = \sqrt{2x-1}$

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 = **9** (Simplify your answer. Use a comma to separate answers as needed.)

---

143. Multiply.

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

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

Answer: $42+44i$

---

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

$(x+9)^2 = 16$

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

Answer: $-5, -13$

---

145. The area of a square room is 256 square feet. Find the dimensions of the room.

The side of the room is ☐ feet long.

Answer: 16

---

146. Evaluate $\sqrt{b^2 - 4ac}$ for $a = 2$, $b = 3$, and $c = -5$.

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

Answer: 7

---

147. Use the quadratic formula to solve the equation.

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

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

Answer: $-2, -1$

---

148. Use the quadratic formula to solve the equation.

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

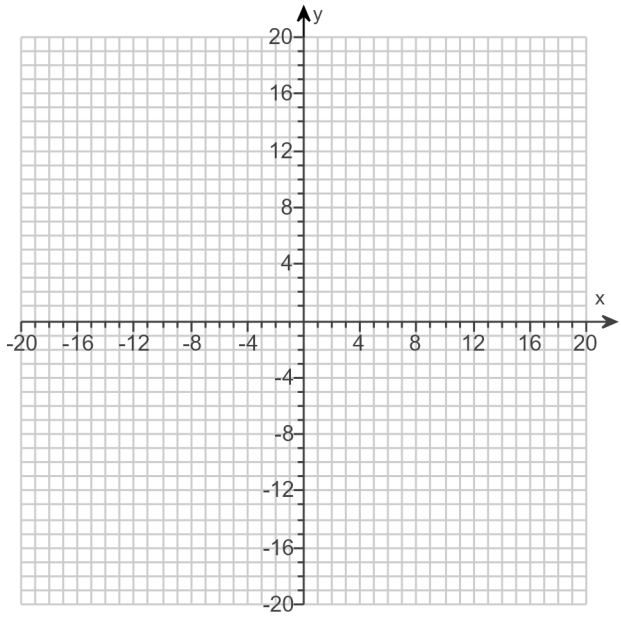
The solution(s) is/are $x =$ ☐.
(Simplify your answer. Type an exact answer, using radicals and i as needed. Use a comma to separate answers as needed.)

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

149.

Sketch the graph of the quadratic function and the axis of symmetry. State the vertex, and give the equation for the axis of symmetry.

$g(x) = (x + 3)^2 - 4$



Use the graphing tool to graph the function as a solid curve and the axis of symmetry as a dashed line.

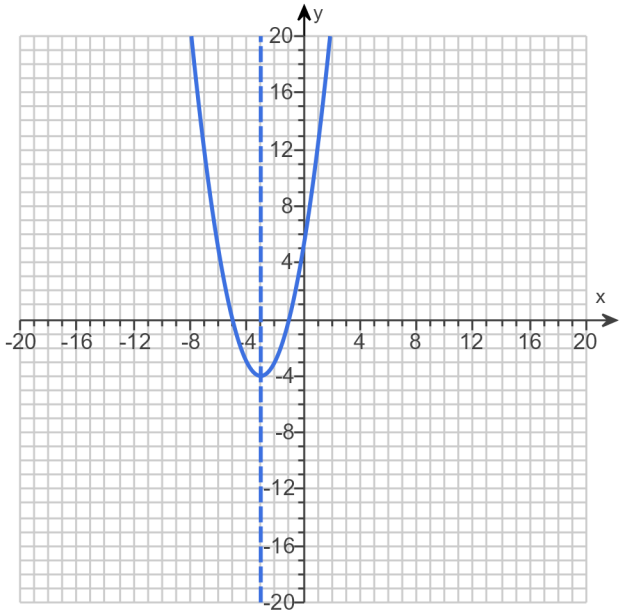
What is the vertex of the graph?

The vertex is [ ].
(Type an ordered pair.)

What is the equation for the axis of symmetry?

[ ] (Type an equation.)

Answers



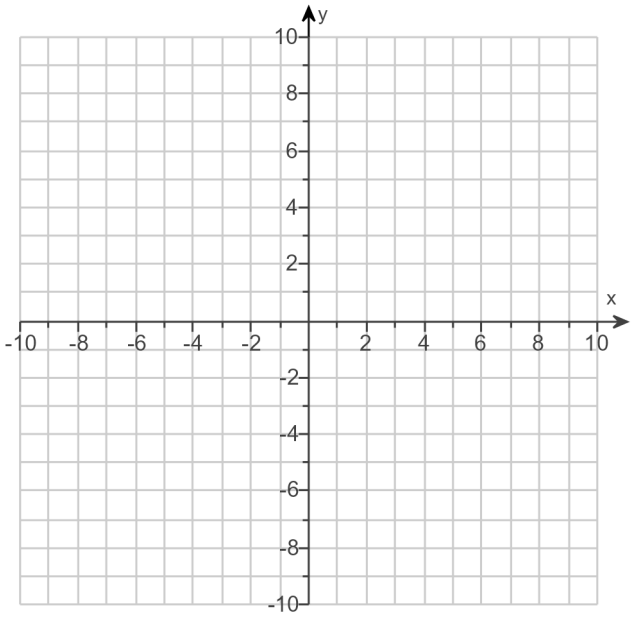
$(-3, -4)$

$x = -3$

150.

Sketch the graph of the quadratic function and the axis of symmetry. State the vertex, and give the equation for the axis of symmetry.

$F(x) = -x^2 + 5$

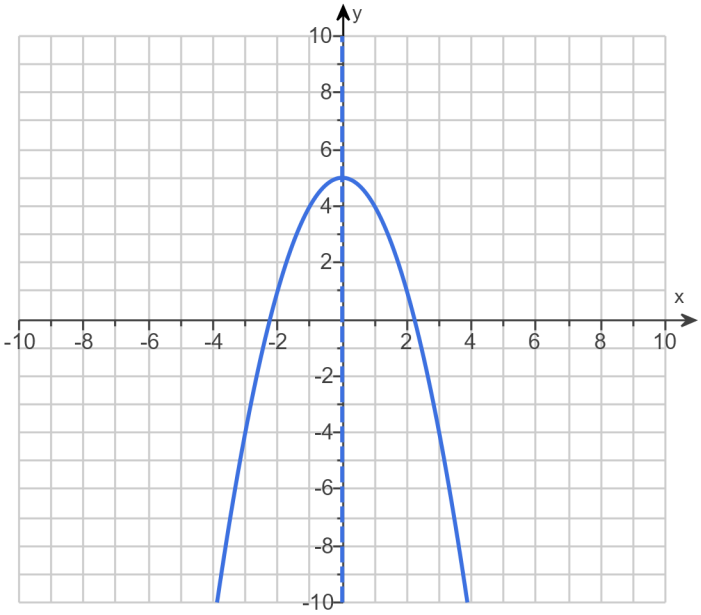


Use the graphing tool to graph the function as a solid curve and the axis of symmetry as a dashed line.

The vertex is [ ].
(Type an ordered pair.)

The axis of symmetry is [ ].
(Type an equation.)

Answers



(0,5)

x = 0