05-07-19
05-09-19
05-11-19
05-13-19

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

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

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

   $2x - y =$ [ ]

   Answer: 19

$2x - y =$
$2(9) - (-1) =$
$18 + 1 =$
$19 =$

2. Simplify.

   $6 + 9 \cdot 8 - 15$

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

   Answer: 63

$6 + 9 \cdot 8 - 15 =$
$6 + 72 - 15 =$
$78 - 15 =$
$63 =$

3. Simplify.

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

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

   Answer: -33

$6 \cdot 2 - 5 \cdot 4 + (-25) =$
$6 \cdot 2 - 5 \cdot 4 - 25 =$
$12 - 5 \cdot 4 - 25 =$
$12 - 20 - 25 =$
$-8 - 25 =$
$-33 =$

4. Simplify.

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

   The answer is [ ].

   Answer: 96

$8(-12) \div [5(-8) - 3(-13)] =$
$8(-12) \div [-40 - 3(-13)] =$
$8(-12) \div [-40 + 39] =$
$8(-12) \div [-1] =$
$-96 \div [-1] =$
$96 =$

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

   $x^2 - y$

   $x^2 - y =$ [ ]

   Answer: -2

$x^2 - y =$
$(-2)^2 - (6) =$
$(-2)(-2) - (6) =$
$4 - 6 =$
$-2 =$

6. Solve. Check your solution.

   $d - 2 = -12$

   The solution is $d =$ [ ].

   Answer: -10

$d - 2 = -12$
$d - 2 + 2 = -12 + 2$
$d = -10$

7. Solve.

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

The solution is n = [ ].

Answer: − 10

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

$2\left(\frac{n}{2}\right) = 2(-5)$

$\frac{2n}{2} = -10$

$n = -10$

8. Simplify the expression by combining like terms.

6x − 18x

6x − 18x = [ ]

Answer: − 12x

$6x - 18x =$

$-12x =$

9. Multiply.

− 6(2y + 2)

− 6(2y + 2) = [ ]

Answer: − 12y − 12

$-6(2y+2) =$

$-12y - 12 =$

10. Simplify the expression.

4y − 2(y − 3) + 4

4y − 2(y − 3) + 4 = [ ]

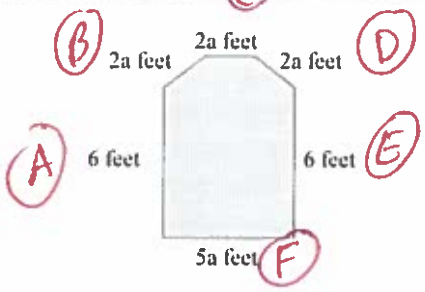
Answer: 2y + 10

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

$4y - 2y + 6 + 4 =$

$2y + 10 =$

11. Find the perimeter of the figure.



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

Answer: 11a + 12

$P = A + B + C + D + E + F$

$P = 6 + 2a + 2a + 2a + 6 + 5a$

$P = 11a + 12$

$N = -3x + 9$

12. Find the perimeter of the figure.

$P = 5N$

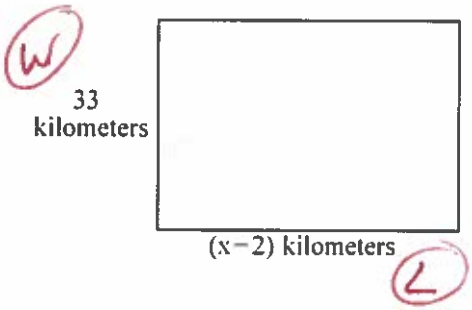
$P = 5(-3x+9)$

$P = -15x + 45$

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.)

$A = LW$

$A = (x-2)(33)$

$A = 33x - 66$

Answer: 33x − 66

W L

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.

$P = 2L + 2W$

$P = 2(17) + 2(13)$

$P = 34 + 26$

$P = 60$

Answer: 60

15. Solve and check the solution.

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

$12x - 8 = 13x$

$12x - 8 + 8 = 13x + 8$

$12x = 13x + 8$

$12x - 13x = 13x + 8 - 13x$

$-1x = 8$

$\frac{-1x}{-1} = \frac{8}{-1}$

$x = -8$

4(3x − 2) = 13x

x = ☐

Answer: −8

16. Solve the equation.

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

$-4x - 24 - 43 = -31$

$-4x - 67 = -31$

$-4x - 67 + 67 = -31 + 67$

$-4x = 36$

$\frac{-4x}{-4} = \frac{36}{-4}$

$x = -9$

−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

$\frac{x}{-3} = 4 \cdot 4 - (6) + 5$

$\frac{x}{-3} = 16 - 6 + 5$

$\frac{x}{-3} = 10 + 5$

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

$-3\left(\frac{x}{-3}\right) = -3(15)$

$x = -45$

18. Solve the equation.

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

$x =$ ☐

Answer: −11

$2x - 2 = 3x + 9$

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

$2x = 3x + 11$

$2x - 3x = 3x + 11 - 3x$

$-1x = 11$

$\frac{-1x}{-1} = \frac{11}{-1}$

$x = -11$

19. Solve the equation.

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

$x =$ ☐

Answer: −35

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

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

$-16x = -12x + 140$

$-16x + 12x = -12x + 140 + 12x$

$-4x = 140$

$\frac{-4x}{-4} = \frac{140}{-4}$

$x = -35$

20. Solve the equation.

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

$y =$ ☐

Answer: 0

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

$5y - 15 = 2y - 15$

$5y - 15 + 15 = 2y - 15 + 15$

$5y = 2y$

$5y - 2y = 2y - 2y$

$3y = 0$

$\frac{3y}{3} = \frac{0}{3}$

$y = 0$

21. Solve the equation.

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

$t =$ ☐

Answer: −11

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

$4t - 1 + 1 = 5t + 10 + 1$

$4t = 5t + 11$

$4t - 5t = 5t + 11 - 5t$

$-1t = 11$

$\frac{-1t}{-1} = \frac{11}{-1}$

$t = -11$

22. Solve the equation.

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

$c =$ ☐

Answer: 2

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

$6c - 2 - 2 = 2c + 4$

$6c - 4 = 2c + 4$

$6c - 4 + 4 = 2c + 4 + 4$

$6c = 2c + 8$

$6c - 2c = 2c + 8 - 2c$

$4c = 8$

$\frac{4c}{4} = \frac{8}{4}$

$c = 2$

23. Solve the equation.

$5n + 10 = 55$

$n =$ ☐

Answer: 9

$5n+10=55$

$5n+10-10=55-10$

$5n=45$

$\frac{5n}{5}=\frac{45}{5}$

$n=9$

---

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

$(x+4)+(x)=150$

$x+4+x=150$

$2x+4=150$

$2x+4-4=150-4$

$2x=146$

$\frac{2x}{2}=\frac{146}{2}$

$x=73$

$B=x$

$A=x+4$

$A=x+4=73+4=77$

---

25. Multiply. Write the product in simplest form.

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

$-\frac{3}{8}\cdot\frac{5}{6}=$ ☐

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

$\frac{-3}{2\cdot2\cdot2}\cdot\frac{5}{2\cdot3}=$

$\frac{-1(3)}{2\cdot2\cdot2}\cdot\frac{5}{2\cdot3}=$

$\frac{-1(5)}{2\cdot2\cdot2\cdot2}=-\frac{5}{16}$

Primes 2, 3, 5, 7, 11, ...

$2\overline{)8}$ $2\overline{)6}$

$2\overline{)4}$ $3\overline{)3}$

$2\overline{)2}$ 1

1

---

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: $\frac{1}{50}$

$\frac{3}{2\cdot7}\cdot\frac{1}{5}\cdot\frac{7}{3\cdot5}=$

$\frac{3\cdot1}{2\cdot5\cdot3\cdot5}=$

$\frac{1}{2\cdot5\cdot5}=$

$\frac{1}{50}=$

Primes 2, 3, 5, 7, 11, ...

$2\overline{)14}$ $3\overline{)15}$

$7\overline{)7}$ $5\overline{)5}$

1 1

---

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: $\frac{16}{25}$

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

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

$\frac{16}{25}=$

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

$\frac{7}{18} \cdot \frac{36}{11} =$

Primes 2,3,5,7,11

2|18 2|36
3|9 2|18
3|3 3|9
1 3|3
1

$\frac{7}{2 \cdot 3 \cdot 3} \cdot \frac{2 \cdot 2 \cdot 3 \cdot 3}{11} = 1$

$\frac{7 \cdot 2}{11} =$

$\frac{14}{11} =$

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

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

Primes 2,3,5,7,11

2|14 7|49
7|7 7|7
1 1

$\frac{7 \cdot 7 \cdot x \cdot x}{2 \cdot 5 \cdot y} \cdot \frac{3 \cdot 5 \cdot y}{2 \cdot 7 \cdot x} =$

3|15 2|10
5|5 5|5
1 1

$\frac{7 \cdot x \cdot 3}{2 \cdot 2} = \frac{21x}{4}$

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

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

Answer: 12

$\frac{3}{8}(32) =$

Primes 2,3,5,7,11,

2|8 2|32
2|4 2|16
2|2 2|8
1 2|4
2|2
1

$\frac{3}{2 \cdot 2 \cdot 2} \cdot \frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{1} =$

$3 \cdot 2 \cdot 2 =$

$12 =$

31. Add and simplify.

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

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

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

Primes 2,3,5,7,11

2|6 3|21
3|3 7|7
1 1

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

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

$\frac{6}{21} =$

$\frac{2 \cdot 3}{3 \cdot 7} =$

$\frac{2}{7} =$

32. Add and simplify.

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

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

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

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

$\frac{1}{5}\left(\frac{2}{2}\right)+\frac{7}{10}=$

$\frac{2}{10}+\frac{7}{10}=$

$\frac{2+7}{10}=$ $\frac{9}{10}$

Prime 2, 3, 5, 7, 11

33. Subtract.

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

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

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

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

$\frac{1}{8}\left(\frac{3}{3}\right)-\frac{5}{12}\left(\frac{2}{2}\right)=$

$\frac{3}{24}-\frac{10}{24}=$

$\frac{3-10}{24}=$ $\frac{-7}{24}$

2|8 2|12
2|4 2|6
2|2 3|3
1 1

8 = 2·2·2
12 = 2·2·3
LCD = 2·2·2·3

34. Simplify the complex fraction.

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

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

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

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

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

$\frac{6}{7}=$

35. Solve the equation and check the solution.

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

Answer: -78

x = ☐

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

$\frac{13}{4}\left(\frac{-24}{1}\right)=\frac{13}{4}\left(\frac{4x}{13}\right)$

$\frac{13}{2\cdot2}\left(\frac{-2\cdot2\cdot2\cdot3}{1}\right)=x$

$13\cdot(-2)\cdot3=x$

$-78=x$

2|24
2|12
2|6
3|3
1

36. Solve the equation.

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

$\frac{M}{6}(42) = \frac{m}{7}(42) - \frac{1}{1}(42)$ Mult by LCD

$m(7) = m(6) - 1(42)$

$7m = 6m - 42$

$7m - 6m = 6m - 42 - 6m$

$1m = -42$

$m = -42$

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

Answer: −42

37. Solve the equation.

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

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

$9(3) - z(4) = 5(1)$

$27 - 4z = 5$

$27 - 4z - 27 = 5 - 27$

$-4z = -22$

Mult by LCD = 12

$\frac{-4z}{-4} = \frac{-22}{-4}$

$z = \frac{22}{4}$

$z = \frac{2(11)}{2(2)}$

$z = \frac{11}{2}$

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

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

38. Solve.

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

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

$x(1) + 4(2) = 1(1)$

$1x + 8 = 1$

$x + 8 = 1$

$x + 8 - 8 = 1 - 8$

$x = -7$

Mult by LCD = 2

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

Answer: −7

39. Solve the equation.

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

$\frac{m}{5}(15) + \frac{4}{1}(15) = \frac{m}{3}(15) + \frac{6}{1}(15)$

$m(3) + 4(15) = m(5) + 6(15)$

$3m + 60 = 5m + 90$

$3m + 60 - 60 = 5m + 90 - 60$

$3m = 5m + 30$

$3m - 5m = 5m + 30 - 5m$

$-2m = 30$

$\frac{-2m}{-2} = \frac{30}{-2}$

$m = -15$

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

Answer: −15

40. Multiply.

-5.876×1000

-5.876

$\times \quad 1000$

-5876

$-5.876 \times 1000 =$ [ ] (Type an integer or a decimal.)

Answer: −5876

41. Divide.

$\frac{28.156}{100}$

$\frac{28.156}{100} =$ ☐

Answer: 0.28156

$\frac{28.156}{100} =$

$0.28156 =$ move decimal left two times

42. Solve.

$1.6x - 21 = 1.1x + 5$

$x =$ ☐ (Type an integer or a decimal.)

Answer: 52

$1.6x - 21 = 1.1x + 5$

$1.6x - 21 + 21 = 1.1x + 5 + 21$

$1.6x = 1.1x + 26$

$1.6x - 1.1x = 1.1x + 26 - 1.1x$

$.5x = 26$

$\frac{.5x}{.5} = \frac{26}{.5}$

$x = 52$

43. Solve the proportion.

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

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

Answer: 14

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

$7(16) = 8(x)$ cross mult

$112 = 8x$

$\frac{112}{8} = \frac{8x}{8}$

$14 = x$

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

$\frac{16}{72} = \frac{36}{x}$

$16(x) = 72(36)$

$16x = 2592$

$\frac{16x}{16} = \frac{2592}{16}$

$x = 162$

45. Write the fraction as a percent.

$\frac{3}{10}$

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

Answer: 30

$\frac{3}{10} =$

$.30 =$

$10\overline{)3.00}$ $.30$

$-(30)$

0

0

0

$30\% =$

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

Prime: 2, 3, 5, 7, 11, 13 ...

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.)

44% = 0.44

2|44
2|22
11|11
1

Answers 0.44

$\frac{11}{25}$

$44\% = \frac{44}{100} = \frac{2 \cdot 2 \cdot 11}{2 \cdot 2 \cdot 5 \cdot 5} = \frac{11}{5 \cdot 5} = \frac{11}{25}$

2|100
2|50
5|25
5|5
1

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 $[ ].

$A = P - PD$

$A = 430 - (430)(.30)$

$A = 430 - 129.00$ discount

$A = 301.00$ sale price

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 $[ ].

$A = P + PRT$

$A = 64000 + 64000(.105)(5)$

$A = 64000 + 64000(.525)$

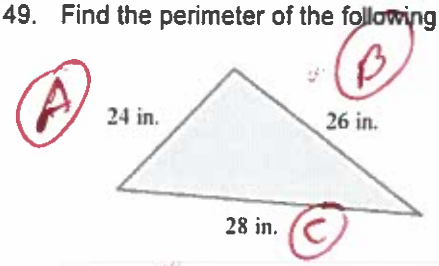
$A = 64000 + 33600$ interest paid

$A = \$97,600$ total amount

Answers 33,600

97,600

49. Find the perimeter of the following figure.



$P = A + B + C$

$P = 24 + 26 + 28$

$P = 50 + 28$

$P = 78$

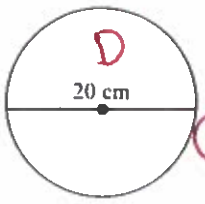
The perimeter is [ ] (1) [ ]

(1) ○ in.
○ sq. in.

Answers 78

(1) in.

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



$C = \pi D$
$C = \pi(20)$
$C = 20\pi$

$C = 3.14 D$
$C = 3.14(20)$
$C = 62.8$

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.

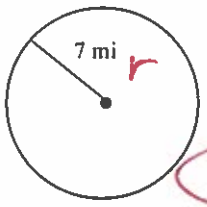
Answers 20π

(1) centimeters.

62.8

(2) centimeters.

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



$C = 2\pi r$
$C = 2\pi(7)$
$C = 14\pi$

$C = 2(3.14)r$
$C = 2(3.14)(7)$
$C = 2(21.98)$
$C = 43.96$

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.

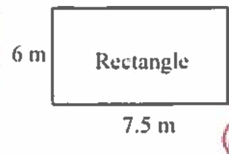
Answers 14π

(1) miles.

43.96

(2) miles.

52. Find the area of the given geometric figure.



$A = LW$
$A = (7.5)(6)$
$A = 45$

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

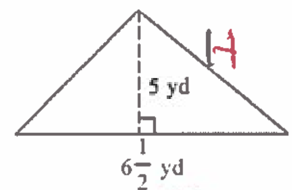
(1) ○ sq m.
○ m.
○ cu m.

Answers 45

(1) sq m.

---

53. Find the area of the geometric figure.



$A = \frac{1}{2}BH$
$A = \frac{1}{2}(6\frac{1}{2})(5)$
$A = (\frac{1}{2})(\frac{13}{2})(\frac{5}{1})$
$A = \frac{65}{4}$
$A = 16\frac{1}{4}$

The area is ______ (1) ______. (Simplify your answer.)

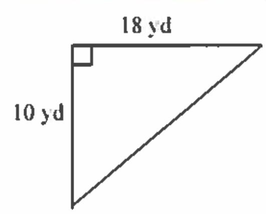
(1) ○ yards
○ square yards
○ cubic yards

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

(1) square yards

---

54. Find the area of the given geometric figure.



$A = \frac{1}{2}BH$
$A = \frac{1}{2}(18)(10)$
$A = \frac{1}{2}(180)$
$A = \frac{180}{2}$
$A = 90$

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

$D = 14$

$r = \frac{1}{2}D$

$r = \frac{1}{2}(14)$

$r = 7$

$A = \pi r^2$

$A = \pi (7)^2$

$A = \pi (7)(7)$

$A = \pi (49)$

$A = 49\pi$

$A = 3.14 r^2$

$A = 3.14 (7)^2$

$A = 3.14 (7)(7)$

$A = 3.14 (49)$

$A = 153.86$

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.

L W

$A = LW$

$A = (18\frac{1}{2})(14)$

$A = (18.5)(14)$

$A = 259$

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

113°F to degrees Celsius

113°F = ____ °C
(Round to the nearest tenth as needed.)

Answer: 45

$C = \frac{5}{9}(F - 32)$

$C = \frac{5}{9}(113 - 32)$

$C = \frac{5}{9}(81)$

$C = \frac{5}{9}(9 \cdot 9)$

$C = 5(9)$

$C = 45$

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.)

$-2(x-7)+6=20$
$-2x+14+6=20$
$-2x+20=20$
$-2x+20-20=20-20$
$-2x=0$
$\frac{-2x}{-2}=\frac{0}{-2}$
$x=0$

59. Solve the equation for y.

$7x+y=9$

y = _____

Answer: $9-7x$

$7x+y=9$
$7x+y-7x=9-7x$
$y=9-7x$ OR $y=-7x+9$

60. Solve the formula for the specified variable.

$A=P+Prt$ for r

r = _____

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

$A=P+Prt$
$A-P=P+Prt-P$
$A-P=Prt$
$\frac{A-P}{Pt}=\frac{Prt}{Pt}$
$\frac{A-P}{Pt}=r$

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

$y<-11$

Choose the correct graph below.

- A. 

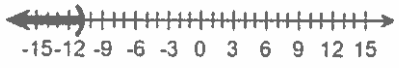
- B. 

- C. 

- D. 

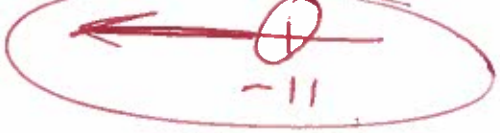
The solution to the inequality $y<-11$ is _____.
(Type your answer in interval notation.)

Answers

D. 

$(-\infty, -11)$

$y<-11$



$-\infty, -11$

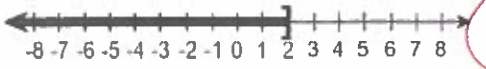
62. Solve the inequality. Graph the solution set and write it in interval notation.

$-6x \le 12$

Choose the correct graph below.

[-2, ∞)

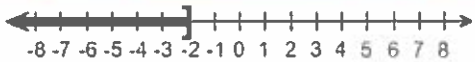
○ A.



● B.

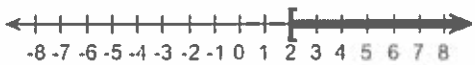
○ C.

○ D.



○ E.

○ F.



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

$-6x \le 12$

$\frac{-6x}{-6} \ge \frac{12}{-6}$ divide by a negative turn the all is to ground

$x \ge -2$

Answers

B. 

$[-2, \infty)$

63. Solve the inequality.

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

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

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

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

$-6x+4 \ge 12-4x$

$-6x+4-4 \ge 12-4x-4$

$-6x \ge -4x+8$

$-6x+4x \ge -4x+8+4x$

$-2x \ge 8$

$\frac{-2x}{-2} \le \frac{8}{-2}$

$x \le -4$

$(-\infty, -4]$

64.

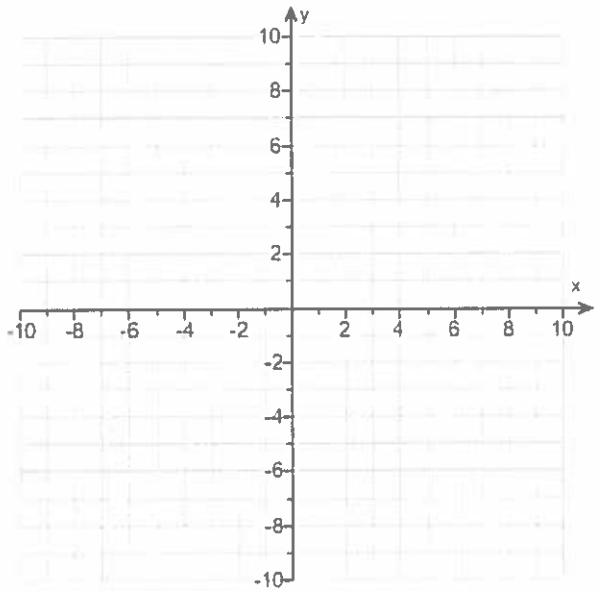
For the following equation, find three ordered pair solutions by completing the table. Then use the ordered pairs to graph the equation.

$y = -4x + 2$

Find three ordered pair solutions of the given equation.

x	y
0	
1	
2	

Use the graphing tool to graph the line.



$y = -4x + 2$

$y = -4(0) + 2$

$y = 0 + 2$

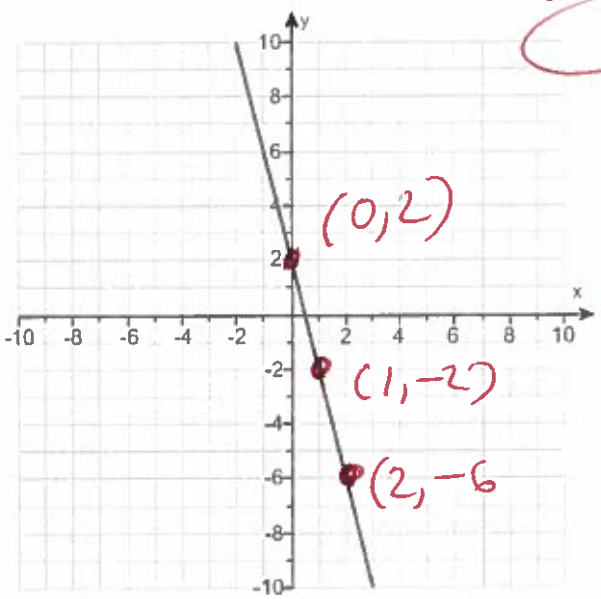
$y = 2$

x	y
0	2
1	-2
2	-6

Answers 2

-2

-6



$y = -4(1) + 2$

$y = -4 + 2$

$y = -2$

$y = -4(2) + 2$

$y = -8 + 2$

$y = -6$

65.

Graph the linear equation by plotting points.

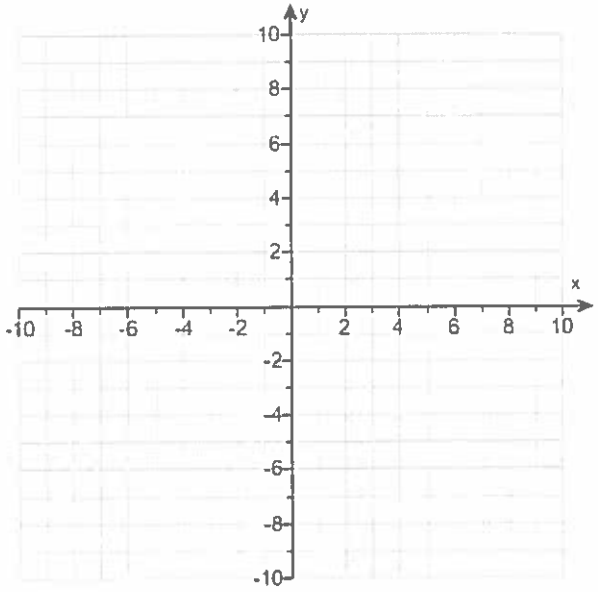
$x + y = -2$

Use the graphing tool to graph the equation.

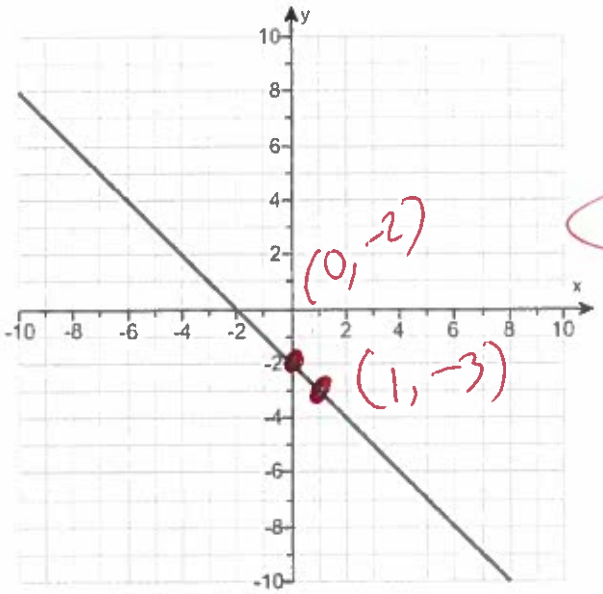
$x + y - x = -2 - x$

$y = -2 - x$

$y = -x - 2$



Answer:



$y = -x - 2$

$y = -(0) - 2$

$y = 0 - 2$

$y = -2$

x	y
0	-2
1	-3

$y = -(1) - 2$

$y = -1 - 2$

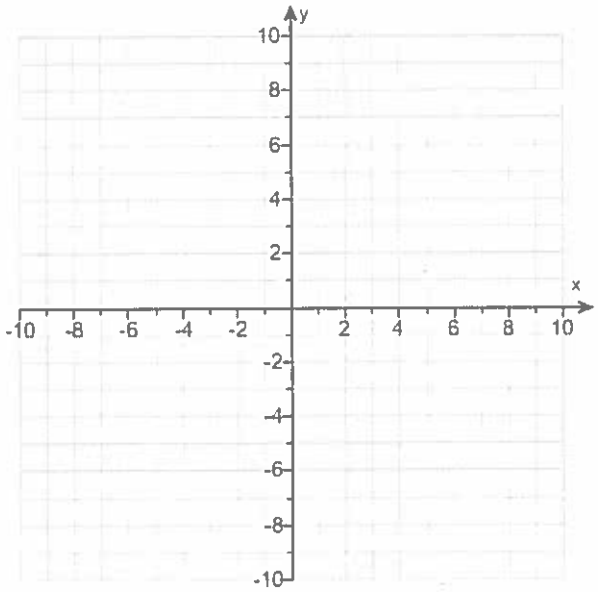
$y = -3$

66.

Graph the linear equation.

$y = -3$

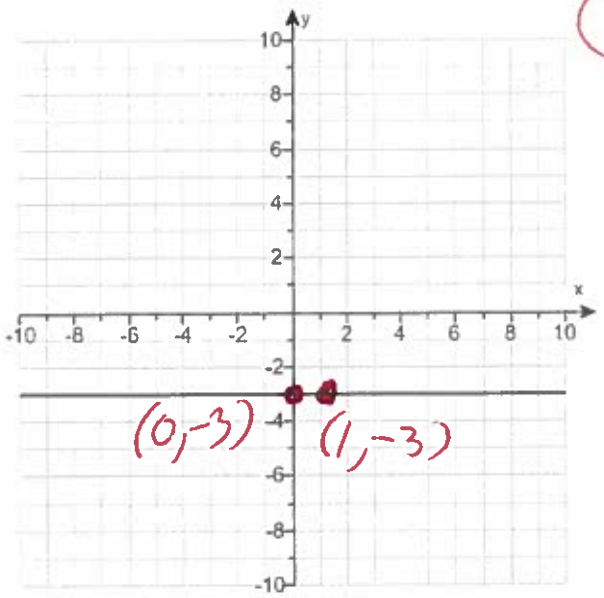
Use the graphing tool to graph the linear equation.



$y = -3$

x	y
0	-3
1	-3

Answer:

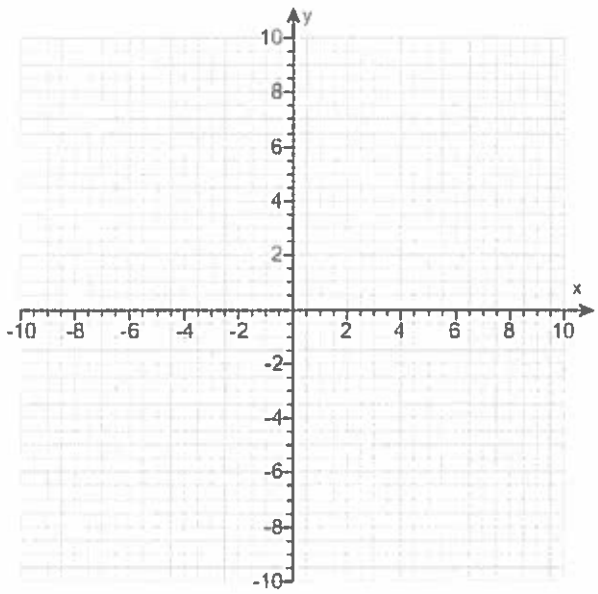


67.

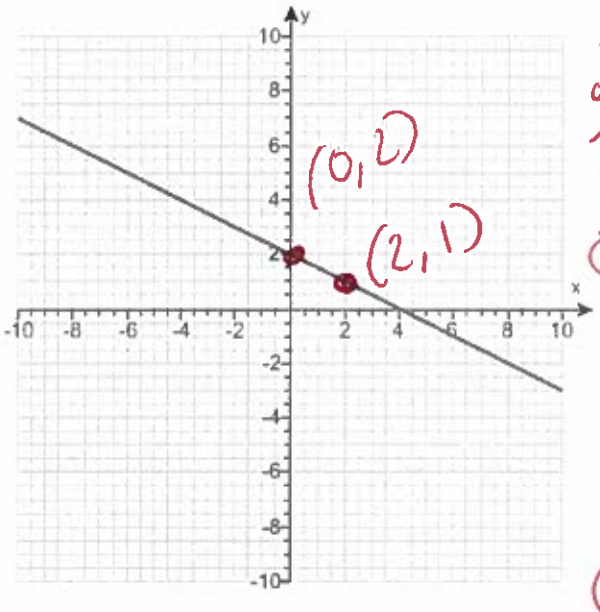
Graph the linear equation.

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

Use the graphing tool to graph the linear equation.



Answer:



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

$y = -\frac{1}{2}(0) + 2$

$y = 0 + 2$

$y = 2$

$y = -\frac{1}{2}(2) + 2$

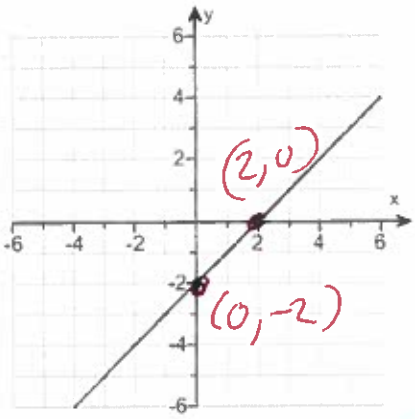
$y = -1 + 2$

$y = 1$

x	y
0	2
2	1

68.

Identify the intercepts.



Answers (2,0)

(0, − 2)

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.)

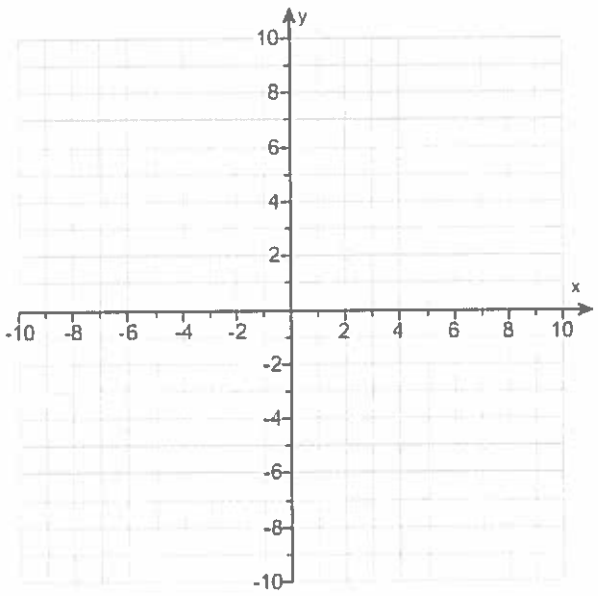
X-Intercept $x = 2$ OR $(2, 0)$

Y-Intercept $y = -2$ OR $(0, -2)$

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.



Find x-intercept let $y=0$

$7x - 2(0) = 14$

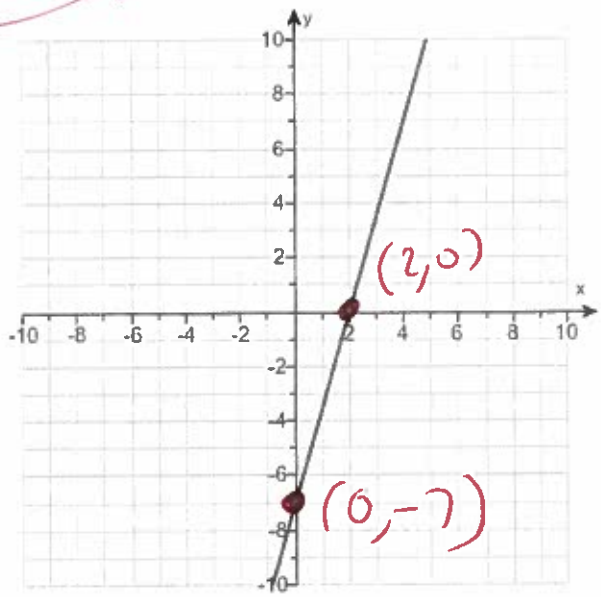
$7x - 0 = 14$

$7x = 14$

$\frac{7x}{7} = \frac{14}{7}$

$x = 2$ $(2,0)$

Answer:



Find y-intercept let $x=0$

$7(0) - 2y = 14$

$0 - 2y = 14$

$-2y = 14$

$\frac{-2y}{-2} = \frac{14}{-2}$

$y = -7$

$(0,-7)$

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

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

$x_1\ y_1\ \ x_2\ y_2$

$m = \frac{y_1 - y_2}{x_1 - x_2}$

$m = \frac{(9) - (-9)}{(-10) - (1)}$

$m = \frac{9+9}{-10-1}$

$m = \frac{18}{-11}$

$m = -\frac{18}{11}$

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)

$m = \frac{y_1 - y_2}{x_1 - x_2}$ $m = \frac{(9)-(9)}{(6)-(-5)}$

$x_1\ y_1 \quad x_2\ y_2$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice. $m = \frac{9-9}{6+5}$

$m = \frac{0}{11}$

$m = 0$

- 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.

$y = 3x - 3$

formula $y = mx + b$

Slope $= m$ y-intercept $= b$ OR $(0, b)$

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

$y = 3x - 3$

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

Slope $= m = 3$

Answer: A. The slope is 3.

73. Find the slope of the line.

$9x + y = 2$

$9x + y - 9x = 2 - 9x$

$y = 2 - 9x$ OR $y = -9x + 2$

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.

formula $y = mx + b$

Slope $= m$ y-int $= b$ or $(0, b)$

Slope $= m = -9$

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

74. Find the slope of the line.

$9x - 8y = 72$

$9x - 8y - 9x = 72 - 9x$

$-8y = 72 - 9x$

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

$\frac{-8y}{-8} = \frac{72}{-8} - \frac{9x}{-8}$

$y = -9 + \frac{9}{8}x$

$y = \frac{9}{8}x - 9$

- 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.)

formula $y = mx + b$

Slope $= m$ y-intercept $= b$ or $(0, b)$

Slope $= m = \frac{9}{8}$

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: $y = 3x + 25$

$y - y_1 = m(x - x_1)$ (m; x_1 y_1)
$y - (10) = 3(x - (-5))$
$y - 10 = 3(x + 5)$
$y - 10 + 10 = 3x + 15 + 10$
$y = 3x + 25$

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

$(-3)^2 - 7(-3) + 3 =$
$(-3)(-3) - 7(-3) + 3 =$
$9 + 21 + 3 =$
$30 + 3 =$
$33 =$

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

Sub $5 = 5$ Good

b. Is (4,3) a solution?

- ○ No
- ○ Yes

Answers Yes
No

(3,1) YES a solution
x y
$2(3) - (1) = 5$
$6 - 1 = 5$
Sub $(3) + 7(1) = 10$
$3 + 7 = 10$
$10 = 10$
Good

(4,3) NO this is not a solution
x y
$2(4) - (3) = 5$
$8 - 3 = 5$
$5 = 5$
Good
Sub $(4) + 7(3) = 10$
$4 + 21 = 10$
$25 \neq 10$
BAD

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

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

$(2y) + y = 3$
$2y + y = 3$
$3y = 3$
$\frac{3y}{3} = \frac{3}{3}$
$y = 1$
$x = 2y$
$x = 2(1)$
$x = 2$

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; $\{(x,y)|x + y = 3\}$ or $\{(x,y)|x = 2y\}$.
- ○ **C.** There is no solution; {} or ∅.

(x, y)
$(2, 1)$

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

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

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

$4(2x+1) - 6x = 10$
$8x + 4 - 6x = 10$
$2x + 4 = 10$
$2x + 4 - 4 = 10 - 4$
$2x = 6$
$\frac{2x}{2} = \frac{6}{2}$
$x = 3$

$y = 2x + 1$
$y = 2(3) + 1$
$y = 6 + 1$
$y = 7$

(x, y)
$(3, 7)$

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 $\varnothing$.

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

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

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

$4x - y = 13$
$5x + y = 23$
$9x + 0 = 36$
$9x = 36$
$\frac{9x}{9} = \frac{36}{9}$
$x = 4$

$4x - y = 13$
$4(4) - y = 13$
$16 - y = 13$
$16 - y - 16 = 13 - 16$
$-y = -3$
$\frac{-y}{-1} = \frac{-3}{-1}$
$y = 3$

(x, y)
$(4, 3)$

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 $\varnothing$.

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

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

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

(-5) (2) Mult

$-5x - 10y = 5$
$12x + 10y = -26$
$7x = -21$
$\frac{7x}{7} = \frac{-21}{7}$
$x = -3$

Subst

$x + 2y = -1$
$-3 + 2y = -1$
$-3 + 2y + 3 = -1 + 3$
$2y = 2$
$\frac{2y}{2} = \frac{2}{2}$
$y = 1$

$(x, y) = (-3, 1)$

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 $\varnothing$.

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

$x+y=33$
$x-y=11$
$2x+0=44$
$2x=44$
$\frac{2x}{2}=\frac{44}{2}$
$x=22$

$x+y=33$
$22+y=33$
$22+y-22=33-22$
$y=11$
$(x,y)=(22,11)$

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

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

$(-8a^3b^3)(9ab^5)=-72a^{3+1}b^{3+5}=$

$-72a^4b^8=$

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

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

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

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

$(6)(-5)(1)z^{11+7+3}=$

$-30z^{21}=$

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}

$(y^8)^3=$

$y^{(8)(3)}=$

$y^{24}=$

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

$(4m^3)^2$

$(4m^3)^2=$

Answer: $16m^6$

$(4^1m^3)^2=$

$4^{(1)(2)}m^{(3)(2)}=$

$4^2m^6=$

$4\cdot4m^6=$

$16m^6=$

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

$(-6a^4b^3c)^2$ = $(-6)^1a^4b^3c^1)^2 = (-6)^{(1)(2)}a^{(4)(2)}b^{(3)(2)}c^{(1)(2)} =$

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

$= (-6)^2a^8b^6c^2$

$= (-6)(-6)a^8b^6c^2$

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

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

$\left(\frac{-7x^2z^5}{y^5}\right)^3 = \left(\frac{(-7)^1x^2z^5}{y^5}\right)^3 = \frac{(-7)^{(1)(3)}x^{(2)(3)}z^{(5)(3)}}{y^{(5)(3)}} = \frac{(-7)x^6z^{15}}{y^{15}}$

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

$= \frac{(-7)(-7)(-7)x^6z^{15}}{y^{15}}$

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

89. Simplify the expression.

$b^3b^4b^7$ $= b^3 \cdot b^4 \cdot b^7 =$

$b^3b^4b^7 =$ [ ] $b^{3+4+7} =$

$b^{14} =$

Answer: b^{14}

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

$\frac{5x^4y^2z}{x^2yz} = \frac{5x^4y^2z^1}{x^2y^1z^1} = 5x^{4-2}y^{2-1}$

$\frac{5x^4y^2z}{x^2yz} =$ [ ] $= 5x^2y^1$

Answer: $5x^2y$ $= 5x^2y$

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

$P(6) = (6)^2 + (6) + 5$

P(6) = [ ] $P(6) = (6)(6) + (6) + 5$

$P(6) = 36 + 6 + 5$

$P(6) = 42 + 5$

Answer: 47 $P(6) = 47$

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

$5a^2 - 8ab + 9b^2 - 3a^2 - 3ab + 5b^2$ = $2a^2 - 11ab + 14b^2$

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

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

93. Subtract.

$(9y^2 + 4y - 5) - (-9y + 6)$ = $9y^2 + 4y - 5 + 9y - 6 =$

$(9y^2 + 4y - 5) - (-9y + 6) =$ ☐ (Simplify your answer.) $9y^2 + 13y - 11 =$

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

94. Add.

$(-7y^2 - 7y) + (8y^2 + 2y - 7)$ = $-7y^2 - 7y + 8y^2 + 2y - 7 =$

$(-7y^2 - 7y) + (8y^2 + 2y - 7) =$ ☐ (Do not factor.) $1y^2 - 5y - 7 =$

$y^2 - 5y - 7 =$

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

95. Multiply.

$(x + 7)(x^3 - 4x + 6)$ = $x^4 - 4x^2 + 6x + 7x^3 - 28x + 42 =$

$(x + 7)(x^3 - 4x + 6) =$ ☐ $x^4 + 7x^3 - 4x^2 - 22x + 42 =$

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

96. Multiply vertically.

$(x^2 - 4x - 5)(7x^2 - 6x - 6)$ =

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

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

$7x^4 - 6x^3 - 6x^2 - 28x^3 + 24x^2 + 24x - 35x^2 + 30x + 30 =$

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

97. Multiply.

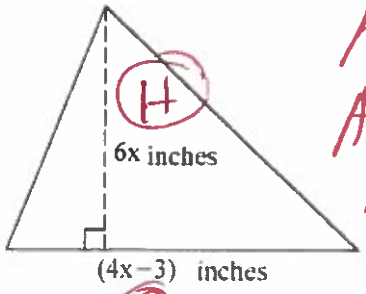
$-3x(x^2+7x-2)$ =

$-3x^3-21x^2+6x=$

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

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

98. Find the area of the triangle.



$A=\frac{1}{2}BH$

$A=\frac{1}{2}(4x-3)(6x)$

$A=\frac{1}{2}(24x^2-18x)$

$A=\frac{24x^2}{2}-\frac{18x}{2}$

$A=12x^2-9x$

13

☐ sq in.

Answer: $12x^2-9x$

99. Multiply using the FOIL method.

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

$4(y-8)(4y-1)=$ ☐

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

$4(4y^2-1y-32y+8)=$

$4(4y^2-33y+8)=$

$16y^2-132y+32=$

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

100. Multiply.

$(x+6)^2$

$(x+6)^2=$ ☐ (Simplify your answer.)

$(x+6)^2=$

$(x+6)(x+6)=$

$x^2+6x+6x+36=$

$x^2+12x+36=$

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

101. Multiply.

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

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

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

$a^2+7a-7a-49=$

$a^2-49=$

Answer: a^2-49

102. Multiply the monomial and the polynomial.

$4x^4(2x^4 - 8x^2 + 5)$ =

$4x^4(2x^4 - 8x^2 + 5) =$ ☐

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

$8x^8 - 32x^6 + 20x^4 =$

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. $d^2 - 6dc + 9c^2$

$(d-3c)^2 =$

$(d-3c)(d-3c) =$

$d^2 - 3dc - 3dc + 9c^2 =$

$d^2 - 6dc + 9c^2 =$

OR

$d^2 - 6cd + 9c^2$

104. Simplify the following expression.

5^{-2}

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

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

$5^{-2} =$

$\frac{1}{5^2} =$

$\frac{1}{5 \cdot 5} =$

$\frac{1}{25}$

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

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

$(3^{-1})^{-3} =$

$3^{(-1)(-3)} =$

$3^3 =$

$3 \cdot 3 \cdot 3 =$

27

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

$\frac{y^{-1}}{y}$ = $\frac{1\,y^{-1}}{y}$ = $\frac{1}{y^{1}y^{1}}$ = $\frac{1}{y^{1+1}}$ = $\frac{1}{y^2}$

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

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

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

$\frac{c^{-4}}{c^{-6}}$ = $\frac{c^6}{c^4}$ = c^{6-4} = c^2

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

Answer: c^2

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

$(-4x^5y^{-4})(5x^{-1}y^2)$ = $(-4)(5)x^{5-1}y^{-4+2}$ = $-20x^{4-2}y$

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

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

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

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

$(a^{-7}b^4)^{-4}$ = $a^{(-7)(-4)}b^{(4)(-4)}$ = $a^{28}b^{-16}$ = $\frac{a^{28}}{b^{16}}$ =

$(a^{-7}b^4)^{-4}$ = ____ (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

25000. =

$2.5 \times 10^4 =$

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}

0.0000013 =

$1.3 \times 10^{-6} =$

112. Divide.

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

$$\frac{3p^7 + 9p^6}{3p} = \text{[ ]}$$

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

$\frac{3p^7}{3p^1} + \frac{9p^6}{3p^1} =$

$p^{7-1} + 3p^{6-1} =$

$p^6 + 3p^5 =$

113. Find the GCF for the given list.

32, 36

The GCF is [ ].

Answer: 4

Primes 2, 3, 5, 7, 11, 13, 17, 19

$32 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$

$36 = 2 \cdot 2 \cdot 3 \cdot 3$

GCF $= 2 \cdot 2$

$= 4$

32: 2 | 16 | 8 | 4 | 2 | 1

36: 2 | 18 | 9 | 3 | 1

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

2x + 10

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

Answer: 2(x + 5)

$2x + 10 =$

$2(x + 5) =$

115. Factor.

$8xy - 54x^2$

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

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

$8xy^1 - 54x^2 =$
$2x(4y^1 - 27x^1) =$
$2x(4y - 27x) =$

116. Factor the following polynomial.

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

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

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

$-12x^4y^5 - 20x^7y^4 =$
$4x^4y^4(-3y^1 - 5x^3) =$
$4x^4y^4(-3y - 5x^3) =$

117. Factor the trinomial completely.

$x^2 - 4x - 21$

Possible
21, 1
3, 7

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.)

$x^2 - 4x - 21 =$
$(x + 3)(x - 7) =$

118. Factor the following binomial completely.

formula $a^2 - b^2 = (a+b)(a-b)$

$121x^2 - 36y^2$

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.)

$121x^2 - 36y^2 =$
$(11x)^2 - (6y)^2 =$
$(11x + 6y)(11x - 6y) =$

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: $5, -7$

$x - 5 = 0$ OR $x + 7 = 0$
$x - 5 + 5 = 0 + 5$ OR $x + 7 - 7 = 0 - 7$
$x = 5$ OR $x = -7$

120. Solve the equation.

$5x(x-3)=0$

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

Answer: 3,0

$5x=0$ OR $x-3=0$

$\frac{5x}{5}=\frac{0}{5}$ OR $x-3+3=0+3$

$x=0$ OR $x=3$

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

$2x+9=0$ OR $3x-4=0$

$2x+9-9=0-9$ OR $3x-4+4=0+4$

$2x=-9$ OR $3x=4$

$\frac{2x}{2}=\frac{-9}{2}$ OR $\frac{3x}{3}=\frac{4}{3}$

$x=-9/2$ OR $x=4/3$

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

$(x-2)(x-8)=0$

$x-2=0$ OR $x-8=0$

$x-2+2=0+2$ OR $x-8+8=0+8$

$x=2$ OR $x=8$

Possible
16.1
4.4
2.8

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: $-5,2$

$(x-2)(x+5)=0$

$x-2=0$ OR $x+5=0$

$x-2+2=0+2$ OR $x+5-5=0-5$

$x=2$ OR $x=-5$

Possible
10.1
2.5

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

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

$x(x-2)(x-8)=0$

$x=0$ OR $x-2=0$ OR $x-8=0$

$x=0$ OR $x-2+2=0+2$ OR $x-8+8=0+8$

$x=2$ OR $x=8$

Possible
16.1
4.4
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: $-\frac{7}{6}, 1$

$(6x+7)(x-1)=0$

$6x+7=0$ OR $x-1=0$

$6x+7-7=0-7$ OR $x-x+x=0+1$

$6x=-7$ OR $x=1$

$\frac{6x}{6}=\frac{-7}{6}$

$x=-\frac{7}{6}$

6.1 2.3 7.1

126. Simplify the expression.

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

$\frac{(x+1)}{(x+1)(x-5)}=$

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.

$\frac{1(x+1)}{(x+1)(x-5)}=$

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

$\frac{1}{x-5}=$

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.)

$\frac{2\cdot2\cdot2\cdot x}{y\cdot y}\cdot\frac{3\cdot3\cdot y}{5\cdot x}=$

$\frac{2\cdot2\cdot2\cdot3\cdot3}{y\cdot5}=$

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

$\frac{72}{5y}=$

128. Find the product and simplify if possible.

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

$\frac{(x)^2-(7)^2}{x^2-3x-28}\cdot\frac{x+4}{x}=$

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

$\frac{(x+7)(x-7)}{(x+4)(x-7)}\cdot\frac{(x+4)}{(x)}=$

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

$\frac{x+7}{x}=$

129. Find the quotient and simplify the result.

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

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

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

$\frac{18x^3}{y^2} \cdot \frac{2}{3x^3y^2} =$

$\frac{36x^3}{3x^3y^4} =$

$\frac{(12)(3)x^{3}}{(3)x^{3}y^4} = \frac{12}{y^4}$

130. Add the rational expressions.

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

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

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

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

$\frac{12m}{4n} =$

$\frac{(4)3m}{(4)n} = \frac{3m}{n}$

131. Subtract the rational expressions.

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

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

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

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

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

$\frac{x+1}{(x+1)(x-12)} =$

$\frac{1(x+1)}{(x+1)(x-12)} =$

$\frac{1}{x-12} =$

132. Solve the equation.

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

$3(z)-\frac{1}{z}(z)=5(z)$ LCD = z

$3z-1=5z$ Mult

$3z-1+1=5z+1$

$3z=5z+1$

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

$3z-5z=5z+1-5z$

$-2z=1$

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

$\frac{-2z}{-2}=\frac{1}{-2}$

$z=-\frac{1}{2}$

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.

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

$9(v-8)=5(v)$ Cross mult

$9v-72=5v$

$9v-72+72=5v+72$

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

$9v=5v+72$

$9v-5v=5v+72-5v$

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

$4v=72$

$\frac{4v}{4}=\frac{72}{4}$

$v=18$

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.

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

$\frac{3}{y}(2y)+\frac{3}{2}(2y)=\frac{9}{2y}(2y)$ LCD = 2y Mult

$3(2)+3(y)=9(1)$

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

$6+3y=9$

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

$6+3y-6=9-6$

$3y=3$

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

$\frac{3y}{3}=\frac{3}{3}$

$y=1$

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	

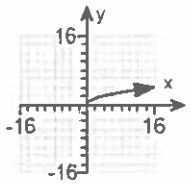
The domain of the function f(x) is _____.
(Type your answer in interval notation.)

Complete the table to the right.

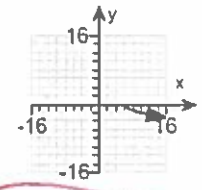
Graph the function. Choose the correct graph to the right.

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

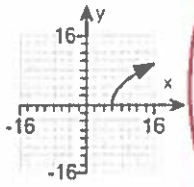
○ A.



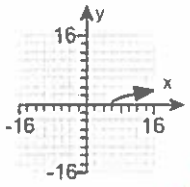
○ B.



○ C.



● D.



Answers [6,∞)

0

1

3

4

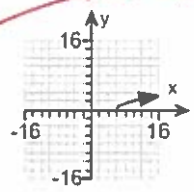
$f(6) = \sqrt{6-6} = \sqrt{0} = 0$

$f(7) = \sqrt{7-6} = \sqrt{1} = 1$

$f(15) = \sqrt{15-6} = \sqrt{9} = 3$

$f(22) = \sqrt{22-6} = \sqrt{16} = 4$

x	f(x)
6	0
7	1
15	3
22	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.

$\sqrt{54}$

Answer: $3\sqrt{6}$

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

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.

$\sqrt{x-14} = 4$

$(\sqrt{x-14})^2 = (4)^2$

$x-14 = 16$

$x-14+14 = 16+14$

$x = 30$

Check

$\sqrt{x-14} = 4$

$\sqrt{30-14} = 4$

$\sqrt{16} = 4$

$4 = 4$

Good

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.

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

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

$x+4 = 2x-1$

$x+4-x = 2x-1-x$

$x = 2x-5$

$1x-2x = 2x-5-2x$

$-1x = -5$

$\frac{-1x}{-1} = \frac{-5}{-1}$

$x = 5$

Check

$\sqrt{5+4} = \sqrt{2(5)-1}$

$\sqrt{9} = \sqrt{10-1}$

$3 = \sqrt{9}$

$3 = 3$

Good

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.)

$56+7i+48i+6i^2 =$

$56+55i+6i^2 =$

$56+55i+6(-1) =$

$56+55i-6 =$

$50+55i =$

formula $i^2 = -1$

Answer: 50 + 55 *i*

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

$(x+7)^2 = 16$

$\sqrt{(x+7)^2} = \pm\sqrt{16}$

$x+7 = \pm 4$

$x+7 = -4$ OR $x+7 = 4$

$x+7-7 = -4-7$ OR $x+7-7 = 4-7$

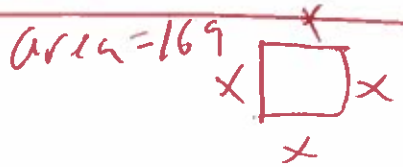
$x = -11$ OR $x = -3$

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.

$A = LW$

$169 = (x)(x)$

$169 = x^2$

$\sqrt{169} = \sqrt{x^2}$

$13 = x$

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

$\sqrt{(1)^2 - 4(2)(-3)} = \sqrt{1 + 24} = \sqrt{25} = 5$

149. Use the quadratic formula to solve the equation.

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

$a=1 \quad b=4 \quad c=3$

$m = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$m = \frac{-(4) \pm \sqrt{(4)^2-4(1)(3)}}{2(1)}$

$m = \frac{-4 \pm \sqrt{16-12}}{2}$

$m = \frac{-4 \pm \sqrt{4}}{2}$

$m = \frac{-4 \pm 2}{2}$

$m = -2 \pm 1$

$m = -2-1$ OR $m = -2+1$

$m = -3$ OR $m = -1$

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.

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

$a=1 \quad b=8 \quad c=25$

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 + 3 *i* , − 4 − 3 *i*

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$x = \frac{-(8) \pm \sqrt{(8)^2-4(1)(25)}}{2(1)}$

$x = \frac{-8 \pm \sqrt{64-100}}{2}$

$x = \frac{-8 \pm \sqrt{-36}}{2}$

$x = \frac{-8 \pm 6i}{2}$

$x = -4 \pm 3i$

$x = -4+3i$ OR $x = -4-3i$