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Assignment: 1.1, 1.2 Linear and
Quadratic Equations

1. Determine whether the number is a solution of the equation.

$$2x - 1 = 5x + 8$$

- a.** $x = 5$
b. $x = -3$

a. Is $x = 5$ a solution to the equation? Choose the correct answer below.

- ☐ Yes
☒ No

b. Is $x = -3$ a solution to the equation? Choose the correct answer below.

- ☐ No
☒ Yes

2. Find the domain of the variable in the equation. Write the answer in interval notation.

$$\frac{5x}{(x-5)(x-7)} = 8x + 9$$

The domain is $(-\infty, 5) \cup (5, 7) \cup (7, \infty)$.
(Type your answer in interval notation.)

3. Solve the equation.

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

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

- ☒ **A.** The solution set is $\left\{ -\frac{3}{7} \right\}$.
(Simplify your answer. Type an integer or a simplified fraction.)
☐ **B.** There is no solution.

4. Solve for p and check.

$$-6p - 3(6 - 4p) = 3(p - 4) - 21$$

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

- ☒ **A.** The solution set is $p = \{ -5 \}$.
☐ **B.** There is no solution.
☐ **C.** The solution is all real numbers.

5. Watch the video and then solve the problem given below.

[Click here to watch the video.](#)¹

Solve $\frac{3}{4}x + \frac{2}{3} = \frac{1}{2} - \frac{1}{4}x$.

The solution set is $\left\{ -\frac{1}{6} \right\}$.

1: http://https://mediaplayer.pearsoncmg.com/assets/2oEt_wZWvPFWQjl4SeVmpNP1RgzJJXWf

6. Solve for j.

$F = 7\pi j$

$j = \frac{F}{7\pi}$

(Simplify your answer. Type an exact answer, using π as needed.)

7. Solve for n.

$w = \frac{4g}{n}$

The solution is $n = \frac{4g}{w}$.

(Simplify your answer.)

8. Solve the formula for c.

$\frac{1}{v} + \frac{1}{w} = \frac{1}{c}$

$c = \frac{vw}{v+w}$

9. Watch the video and then solve the problem given below.

[Click here to watch the video.](#)²

The length of a rectangular garden plot is 40 feet more than three times its width. Find the dimensions of the garden assuming the perimeter is 280 feet.

The length of the garden is feet. The width of the garden is feet.

2: <http://mediaplayer.pearsoncmg.com/assets/eShQt7OuNAYyXAiWc4XioEwP8eaXtKZc>

10. An estate valued at \$171,472 is to be divided between two sons so that the older son receives three times as much as the younger son. Find each son's share of the estate.

The share of the younger son \$.

The share of the elder son \$.

11. The sum of two numbers is 36, and one number is five times the other. Find the numbers.

The smaller number is and the larger number is .

12. Complete the following sentence.

Any equation of the form $ax^2 + bx + c = 0$ with $a \neq 0$ is called a(n) _____ equation.

Any equation of the form $ax^2 + bx + c = 0$ with $a \neq 0$ is called a(n) quadratic equation.

13. Complete the following sentence.

If you complete the square in the quadratic equation $ax^2 + bx + c = 0$, you get the quadratic formula for the solutions $x =$ _____.

Choose the correct answer below.

- ☐ A. $\frac{b \pm \sqrt{b^2 + 4ac}}{2a}$
- ☐ B. $\frac{-b \pm \sqrt{b^2 + 4ac}}{a}$
- ☐ C. $\frac{b \pm \sqrt{b^2 - 4ac}}{a}$
- ☒ D. $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

14. Watch the video and then solve the problem given below.

[Click here to watch the video.](#)³

Solve by factoring.

$$3x^2 - 13x = 10$$

The solution set is $\left\{ -\frac{2}{3}, 5 \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

3: http://mediaplayer.pearsoncmg.com/assets/nVuaVFjMHztgP_EXulHmnxrYTfJpaUGj

15. Solve.

$$r^2 - 7r = 0$$

The solution set is $\{ 0, 7 \}$.

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

16. Solve the equation.

$$x^2 = 4x + 21$$

The solution set is $\{ 7, -3 \}$.

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

17. Watch the video and then solve the problem given below.

[Click here to watch the video.](#)⁴

Solve using the square root method.

$$(2x - 3)^2 = 25$$

The solution set is $\{ \quad -1, 4 \quad \}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

4: http://mediaplayer.pearsoncmg.com/assets/D6_QJVbeKTWxhKFJhEfxhPj1PVNAfvxb

- 18.

Solve.

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

The solution set is $\{ \quad 7, 3 \quad \}$.

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

19. Watch the video and then solve the problem given below.

[Click here to watch the video.](#)⁵

Solve $2x^2 - 8 = 5x$.

The solution set is $\left\{ \frac{5 + \sqrt{89}}{4}, \frac{5 - \sqrt{89}}{4} \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

5: http://mediaplayer.pearsoncmg.com/assets/Ke41IZIFpr8fE20tH_P10ZMquR9k0te0

- 20.

Solve the equation by using the quadratic formula.

$$x^2 + 12x + 5 = 0$$

The solution set is $\left\{ \frac{-12 - \sqrt{124}}{2}, \frac{-12 + \sqrt{124}}{2} \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

- 21.

Solve the equation by using the quadratic formula.

$$9x^2 + 3x = 20$$

The solution set is $\left\{ -\frac{15}{9}, \frac{12}{9} \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

22. Solve the equation by any method.

$$2x^2 + 11x + 12 = 0$$

The solution set is $\left\{ -4, -\frac{3}{2} \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

23. Solve the equation by any method.

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

The solution set is $\left\{ -\frac{\sqrt{24}}{4}, \frac{\sqrt{24}}{4} \right\}$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

24. The length of a rectangle is twice the width. The area is 648 yd^2 . Find the length and the width.

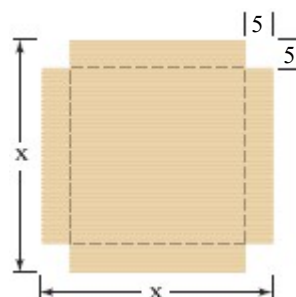
The length is yd.

(Simplify your answer.)

The width is yd.

(Simplify your answer.)

25. An open box is to be constructed from a square piece of sheet metal by removing a square of side 5 feet from each corner and turning up the edges. (See the figure on the right.) If the box is to hold 500 cubic feet, what should be the dimensions of the sheet metal?



What is the length of a side of the square piece of sheet metal?

feet