

**Bell Work**

$$7x - 3y = 29$$

1. Find the solution and show all work.

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

2. What is the equation of the absolute value parent function?

3. What is the equation of a line in point-slope form that is parallel to  $7x - 4y = -26$  and goes through  $(4, -2)$ ?

4. Solve  $4(a - 8) = 5a + 3(a + 6)$  and show all work.

To build the garden of her dreams, Gail needs 10 ft<sup>3</sup> of soil containing 17% clay. She has two types of soil that she can combine to achieve this: soil with 35% clay and soil with 10% clay. How much of each soil should you use?

35%:  $x = 2.8$

10%:  $y = 7.2$

$(-.10) \quad x + y = 10$

$.35x + .10y = .17(10)$

$-.10x - .10y = -1$

$.35x + .10y = 1.7$

$.25x = .7$

$x = 2.8$

$2.8 + y = 10$

$y = 7.2$

1. Identify the variables.
2. Set-up the equations.
3. Solve the equations.
4. Answer the question with a complete sentence.

Gail needs to use 2.8 ft<sup>3</sup> of the 35% clay and 7.2 ft<sup>3</sup> of the 10% clay.

Kristin wants to make 6 gal. of a 34% alcohol solution by mixing together a 24% alcohol solution and a 64% alcohol solution. How much of each solution must she use?

1. Identify the variables.
2. Set-up the equations.
3. Solve the equations.
4. Answer the question with a complete sentence.

$$24\%: x = 4.5$$

$$64\%: y = 1.5$$

$$(-.24) \quad x + y = 6$$

$$.24x + .64y = .34(6)$$

$$-.24x - .24y = -1.44$$

$$.24x + .64y = 2.04$$


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$$.4y = .6$$

$$y = 1.5$$

$$x + 1.5 = 6$$

$$x = 4.5$$

Kristin needs 4.5 gal. of the 24% solution and 1.5 gal. of the 64% solution.

Rachel, a chemist, has a 50% methane solution and a 80% solution. How much of each does she need to make a final solution that is 600 ml of 60% methane?

1. Identify the variables.
2. Set-up the equations.
3. Solve the equations.
4. Answer the question with a complete sentence.

$$50\%: x = 400$$

$$80\%: y = 200$$

$$(-.5) \quad x + y = 600$$

$$.5x + .8y = 600(.6)$$

$$-.5x - .5y = 300$$

$$.5x + .8y = 360$$


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$$.3y = 60$$

$$y = 200$$

$$x + 200 = 600 \quad x = 400$$

Rachel needs 400 ml of 50% solution and 200 of the 80% solution.

The American Sculpture Company makes bronze, which costs \$9.10/kg, by combining copper which costs \$8.90/kg with tin which costs \$9.50/kg. Find the number of kg of copper and tin required to make 15.3 kg of bronze.

1. Identify the variables.
2. Set-up the equations.
3. Solve the equations.
4. Answer the question with a complete sentence.

$$\text{Cop: } x = 2.8$$

$$\text{Tin: } y = 7.2$$

$$(-8.9) \quad x + y = 15.3$$

$$8.9x + 9.5y = 9.1(15.3)$$

$$-8.9x - 8.9y = -136.17$$

$$8.9x + 9.5y = 139.23$$


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$$.6y = 3.06$$

$$y = 5.1$$

$$x + 5.1 = 15.3 \quad x = 10.2$$

They need 15.3 kg of copper and 5.1 kg of tin.

Java Joe's sell a coffee by mixing coffee from Ethiopia and Columbia. The Ethiopian coffee costs \$8.25 a pound while the Columbian costs \$6.50 a pound. How much of each should be used to make 70 pounds of a blend that costs \$7.50?

1. Identify the variables.
2. Set-up the equations.
3. Solve the equations.
4. Answer the question with a complete sentence.

$$\text{Eth.: } x = 40$$

$$\text{Col.: } y = 30$$

$$(-6.5) \quad x + y = 70$$

$$8.25x + 6.50y = 7.50(70)$$

$$-6.5x - 6.5y = -455$$

$$8.25x + 6.5y = 525$$


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$$1.75x = 70$$

$$x = 40$$

$$40 + y = 70$$

$$y = 30$$

They need 15.3 kg of copper and 5.1 kg of tin.

**What are the 5 steps?**

- 1. Identify the variables.**
- 2. Set-up the equations.**
- 3. Solve the equations.**
- 4. Answer the question with a complete sentence.**

## **Assignment:**

# **Systems of Equations: Mixture Word Problems Worksheet**