

## Bellwork: Algebra 1

1. Write down your homework for the night.
2. You need your composition book and a calculator.
3. Take out your green packet from yesterday.
4. Answer the following question on your THURSDAY Bellwork:

Find the values of  $x$  and  $y$ .

$$\begin{array}{l} 2x + y = 10 \\ \underline{y = 3x} \end{array} \quad \begin{array}{l} 3(2) \\ (2, 6) \end{array}$$
$$2x + 3x = 10$$
$$5x = 10 \quad x = 2 \quad y = 6$$

$$13) \begin{aligned} 5x - 2y &= 3 \\ y &= 2x \end{aligned}$$

$$14) \begin{aligned} 2y + x &= -15 \\ x &= 3y \end{aligned}$$

$$15) \begin{cases} 4x + 7y = 19 \\ y = x + 9 \end{cases}$$

$$16) \begin{cases} y = 6x + 11 \\ 2y - 4x = 14 \end{cases}$$

$$17) \begin{aligned} 2x - 8y &= 6 \\ y &= -7 - x \end{aligned}$$

$$18) \begin{aligned} x &= 2y - 1 \\ 3x - 2y &= -3 \end{aligned}$$

Main Ideas/Questions	Notes/Examples
Substitution Method	A method to solve systems of equations by substituting one equation into the other.
Steps to Solve	<ul style="list-style-type: none"> <li>• <b>Step 1:</b> Solve one equation for <u>x</u> or <u>y</u>. (sometimes)</li> <li>• <b>Step 2:</b> <u>substitute</u> this expression into the other equation and <u>solve</u> for the variable.</li> <li>• <b>Step 3:</b> <u>substitute</u> your answer into the revised equation from Step 1 and <u>solve</u> for the other variable. -</li> </ul>

$$1. \begin{cases} y = 4x - 1 \\ y = 2x - 5 \end{cases}$$

$$2(-2) - 5 \\ -4 - 5$$

$$\begin{array}{r} 4x - 1 = 2x - 5 \\ -2x \quad -2x \\ \hline 2x - 1 = -5 \\ +1 \quad +1 \\ 2x = -4 \end{array}$$

$$(-2, -9)$$

$$y = 2x - 5 \\ y = 2(-2) - 5 \\ y = -4 - 5 \\ y = -9$$

$$2. \begin{cases} y = 6x \\ 2x + 3y = -20 \end{cases}$$

$$2x + 3(6x) = -20$$

$$2x = -4$$

$$(-1, -6)$$

$$3. \begin{cases} y = x + 9 \\ 3x + 8y = -5 \end{cases}$$

$$4. \begin{cases} x = 4y + 7 \\ 2x - 6y = 12 \end{cases}$$

$$2(4y + 7) - 6y = 12$$

$$8y + 14 - 6y = 12$$

$$2y + 14 = 12$$

$$2y = -2$$

$$y = -1$$

$$x = 3$$

$$(3, -1)$$

$$5. \begin{cases} 2x + y = -2 \\ 5x + 3y = -8 \end{cases}$$

$$\begin{array}{r} 2x + y = -2 \\ -2x \quad -2x \end{array}$$

$$5x + 3(-2 - 2x) = -8$$

$$-1x = -2$$

$$x = 2$$

$$y = -2 - 2x$$

$$y = -6$$

$$(2, -6)$$

$$6. \begin{cases} 2x - 3y = -11 \\ 2x + y = 9 \end{cases}$$

$$\begin{array}{r} -2 - 2(2) \\ -2 - 4 = -6 \end{array}$$

$$7. \begin{cases} x + 5y = 4 \\ 3x + 15y = -1 \end{cases}$$

$$x = 4 - 5y$$

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$$3(4 - 5y) + 15y = -1$$

$$12 - 15y + 15y = -1$$

$$8. \begin{cases} x + 4y = 0 \\ 3x + 2y = 20 \end{cases}$$

$$12 = -1$$

⋮

9.  $\begin{cases} 6x + 3y = 54 \\ 2x + y = 18 \end{cases}$

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$54 = 54$

$y = 18 - 2x$   
 $6x + 3(18 - 2x) = 54$   
 $\cancel{6x} + 54 - \cancel{6x} = 54$

10.  $\begin{cases} x - 3y = -2 \\ 10x + 8y = -20 \end{cases}$

11.  $\begin{cases} 3x - y = -8 \\ 5x + 2y = 5 \end{cases}$