3.2.1 Solving Equations and Checking Solutions

Homework

Name ____________________________________________ Period __________

Work through each of the problems below to practice the concepts from today's lesson and review concepts from previous lessons. Then review AND FIX work your work using the class website: MrsGainesClassWebsite.weebly.com. Be sure to always **show all work!**

3-74. For the following equations, solve for x. Be sure to check your answer; if possible. Show all work.

a. \(3x + 7 = -x - 1\)
   
   \[x = -2\]

b. \(-3x = x - (6 - 2x)\)
   
   \[x = 1\]

c. Use a diagram of an Equation Mat to explain why \(-(x - 3) = -x + 3\).
   
   \(-(x - 3)\text{ means "the opposite of" } (x - 3), \text{ which equals } -x + 3\]

3-75. For each equation, a possible solution is given. Check to see if the given solution is correct.

a. If \(3x + 7 = x - 1\) then does \(x = -4\)?
   
   **Yes**

b. If \(-2x - 4 = -4x + 3\) then does \(x = 3\)?
   
   **no**

c. If \(-3x + 5 + 5x - 1 = 0\) then does \(x = 2\)?
   
   **No**

d. If \(-(x - 1) = 4x - 5 - 3x\) then does \(x = 3\)?
   
   **yes**
3-76. For the rule \( y = -2x + 1 \), calculate the \( y \)-values that complete the table below.

<table>
<thead>
<tr>
<th>IN ((x))</th>
<th>-4</th>
<th>-3</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT ((y))</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>-1</td>
<td>-3</td>
<td>-5</td>
<td>-7</td>
</tr>
</tbody>
</table>

a. Graph your rule on a set of axes. Be sure to create a complete graph. If necessary, see the Math Notes box for this lesson to review what makes a graph complete.

b. Describe your resulting graph. What does your graph look like?

It's a slanted line where \( y \) decreases as \( x \) increases.

3-77. Simplify each expression below.

a. \( 4x + 7 + 3y - (1 + 3y + 2x) \)

\[ 2x + 6 \]

b. \( 16x^2 - 4x + 5 - (16x^2 - 8x) + 1 \)

\[ 4x + 6 \]

c. \( (32x - 7y) - (28x - 11y) \)

\[ 4x + 4y \]

d. \( y + 2 + 2y + 2 + 2y - 2x + y \)

\[ 6y - 2x + 4 \]

3-78. Burgers-o-Rama is the best hamburger place in town. The owner, Ms. Hamm, buys two 5-pound packages of meat for $27.50. Use proportional reasoning to determine the information below. Be sure to explain your answer and organize your reasoning.

a. What should Ms. Hamm pay for 25 pounds of meat?

\$68.75

b. How many pounds can Ms. Hamm buy for $55.00?

20 lbs