Warm Up:
Use the distributive property to simplify.

- \((5w - 15) \cdot 2.1\)  
  \[10.5w - 31.5\]
- \(5(2x + 4)\)  
  \[10x + 20\]
- \((x - 3)\)  
  \[-x + 3\]
- \(-2(-3y + 7)\)  
  \[6y - 14\]

ACT Question:
Find the difference of \(-\frac{2}{3}\) and \(\frac{1}{2}\).

A.) \(-5\frac{31}{42}\)  
B.) \(2\frac{1}{12}\)  
C.) \(-1\frac{1}{6}\)  
D.) \(7/12\)

Vocabulary:
Equation: is a mathematical sentence that uses an equal sign (=).

Solution of an equation: with two variables \(x\) and \(y\) is any ordered pair \((x, y)\) that makes the equation true.

Examples 1 and 2:
Tell whether the given equation has the ordered pair as a solution.

\(y = x + 6; \ (0, 6)\)

\(6 = 0 + 6\)  
\(6 = 6\)  
**Yes.**

\(y = -x + 3; \ (4, 1)\)

\(-1 = -(4) + 3\)  
\(-1 = -4 + 3\)  
\(-1 \neq 2\)  
**No.**
Examples 3 and 4:
Tell whether the given equation has the ordered pair as a solution.

\[ y = 4x; \quad (5, 20) \]

\[ 20 = 4(5) \]

\[ 20 = 20 \checkmark \]

\[ \text{Yes}. \]

\[ x = y; \quad (-10, -2) \]

\[ \frac{-10}{5} = -2 \]

\[ -2 = -2 \checkmark \]

\[ \text{Yes}. \]

Examples 5 and 6:
Tell whether the given equation has the ordered pair as a solution.

\[ y = 3x; \quad (-4, 16) \]

\[ 16 = 3(-4) \]

\[ 16 = -12 \]

\[ \text{No} \]

\[ -x = y; \quad (-3.1, 3.1) \]

\[ 3.1 = 3.1 \]

\[ \text{No} \]

\[ 3.1 = 3.1 \]

\[ \text{Yes} \]

Example 7:
Use a table and an equation to represent each relationship.

Gavin makes $8.50 for each lawn he mows.

<table>
<thead>
<tr>
<th>Lawns Mowed</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.50</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>25.50</td>
</tr>
<tr>
<td>4</td>
<td>34</td>
</tr>
</tbody>
</table>

\[ 8.50x = y \]

\[ x = \text{lawns mowed} \]

\[ y = \text{dollars made} \]

Example 8:
Use the table to answer the question.

The table shows the number of pages Dustin read in terms of hours. How many pages will Dustin read in 12 hours?

<table>
<thead>
<tr>
<th>Hours, $X$</th>
<th>Pages Read, $y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>3</td>
<td>69</td>
</tr>
<tr>
<td>4</td>
<td>92</td>
</tr>
<tr>
<td>5</td>
<td>115</td>
</tr>
</tbody>
</table>

\[ 23x = y \]

\[ 23(12) = 276 \text{ pages read} \]
Example 9:
Use the table to write an equation and answer the question. The table shows amounts earned for pet sitting. How much is earned for a 9-day job?

<table>
<thead>
<tr>
<th>Days, x</th>
<th>Dollars, y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>68</td>
</tr>
</tbody>
</table>

$17x = y$

$17(9) = $153 made for 9-days

Summary

How do we identify an equation instead of an expression?

- has an $=$ sign

Explain how to solve the following:
y = 2x + 7; (-2, 3)

- label x by
- plug #’s into equation
- do the math
- equal or not equal

Coursework

pg 64 # 9-23 odd (no graphs), 27, 29