October 10, 2012

Section 6.6

Work Problems

Example 1

Tom can paint a fence in 6 hours. Together Tom and Huck can paint the fence in 2 hrs. How long would it take for Huck to paint the fence by himself?

1. Look at the accomplishments of 1 hr.

<table>
<thead>
<tr>
<th>Tom</th>
<th>6</th>
<th>Tom's part + Huck's part = 1 in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huck</td>
<td></td>
<td>1 hr in</td>
</tr>
<tr>
<td>together</td>
<td>2</td>
<td>1 hr</td>
</tr>
</tbody>
</table>

\[
\frac{1}{6} + \frac{1}{x} = \frac{1}{2}
\]

\[
\frac{1}{6} + \frac{1}{x} = \frac{1}{2}
\]

\[
\frac{1}{6} \cdot \frac{x}{x} = \frac{1}{2}
\]

\[
\frac{x + 6}{x} = \frac{3}{2}
\]

\[
\frac{6 + 2x}{x} = \frac{3}{2}
\]

\[
6 = 2x
\]

\[
x = 3
\]

So Huck 3 hrs.
Example 2

Jan can type a report in 7 hours. It takes Mike 3 hours to type the same report. How long would it take if they worked together?

\[
\text{Jan} \quad \frac{1}{7} \\
\text{Mike} \quad \frac{1}{3} \\
\text{Together} \quad \frac{1}{x}
\]

\[
\frac{1}{7} + \frac{1}{3} = \frac{1}{x}
\]

\[
3x + 7x = 21
\]

\[
10x = 21
\]

\[
x = \frac{21}{10} \text{ hrs}
\]

\[
\frac{21}{10} \text{ hrs} \quad \text{Together}
\]