Worksheet #2

Problem #3

Gary works 60 hrs.

1/2 for Overtime
Starts at 40 hrs.
Gross Pay = 591.50

1) Find his pay rate

2) \( x = \text{pay rate} \)

3) \[ \text{Regular Pay} + \text{Overtime Pay} = \text{Gross Pay} \]

\[
40x + 20(1.5x) = 591.50
\]

\[ 40x + 30x = 591.50 \]

\[
\frac{70x}{70} = \frac{591.50}{70}
\]

\( x = 8.45 \)
1) Find Length & Width
2) \[ w = \text{width} \]
\[ 2w + 5 = \text{Length} \]
3) Equation
\[ 2 \text{widths} + 2 \text{lengths} = \text{Perimeter} \]
\[ 2w + 2(2w+5) = 70 \]
\[ 2w + 2w + 10 = 70 \]
\[ 4w + 10 = 70 \]
\[ 4w = 60 \]
\[ w = 15 \]
In a parallelogram the opposite angles have the same measures. Each of the two larger angles in a parallelogram is $35^\circ$ less than 4 times the smaller angles. Find the measure of each angle.

1) Find Measure of Each Angle
2) Opposite Angles Are the Same
   \[ x = \text{Smaller } \angle \]
   \[ 4x - 35 = \text{Larger } \angle \]
   \[ \text{Identity Variables} \]
3) The Sum of the $4$'s of an $8$-sided Figure Is $360^\circ$
   \[ x + x + 4x - 35 + 4x - 35 = 360^\circ \]
   \[ 10x - 70 = 360^\circ \]
   \[ +70 \quad +70 \]
   \[ 10x = 430 \]
   \[ x = 43^\circ \]
   \[ 4x - 35 = 4(43) - 35 = 137^\circ \]
Section 3.9

Distance = Rate \times Time

\[ D = R \times T \]

| 24 | 8 mph | \[ t = \frac{3}{3} \] |
| 33 | 11 mph | \[ d_2 = 11t \] |

\[ d_1 = 8t \]

Sonja

Jari

\[ d_2 = d_1 + 9 \]

\[ d_2 - d_1 = 9 \]

\[ t = \text{time running} - \text{same for both runners} \]

\[ d_2 - d_1 = 9 \]

\[ 11t - 8t = 9 \]

\[ \frac{3t}{3} = \frac{9}{3} \]

\[ t = 3 \text{hr.} \]
\[
\begin{align*}
\text{Large} + \text{Small} &= 9.8 \text{ miles} \\
\frac{7}{2.8} &
\begin{align*}
d_1 + d_2 &= 9.8 \text{ miles} \\
\frac{7}{r+4} + \frac{7}{r} &= 9.8 \\
7r + 2.8 + 7r &= 9.8 \\
14r + 2.8 &= 9.8 \\
14r &= 7.0 \\
\frac{14r}{14} &= \frac{7.0}{14} \\
r &= 5 \text{ mph}
\end{align*}
\end{align*}
\]

\[
\begin{align*}
\text{Large} &= 7 \text{ mph} \\
\text{Small} &= 5 \text{ mph} \\
d_1 &= 9(7) = 63 \text{ miles} \\
d_2 &= 5(5) = 25 \text{ miles}
\end{align*}
\]
Run 11 miles
All together

\[ d_1 + d_2 = 11 \text{ miles} \]

\[ \text{Distance} = \text{Rate} \times \text{Time} \]

\[
\begin{array}{ccc}
\text{Sun} & d_1 & 6 \text{ mph} & t \\
\text{Mother} & d_2 & 4 \text{ mph} & t \\
\end{array}
\]

\[ d_1 = 6t \]
\[ d_2 = 4t \]

Time is same for both Sun and The Sea.

\[ d_1 + d_2 = 11 \]
\[ 6t + 4t = 11 \]
\[ 10t = 11 \]
\[ t = \frac{11}{10} \text{ hr.} \]

\[ 66 \text{ mph} \]
\( \frac{20.4 \text{ miles}}{6 \text{ hr.}} = \frac{3.4 \text{ miles}}{\text{hr.}} \)

\[ d_1 + d_2 = 20.4 \text{ miles} \]

\[ D = R \times T \]

<table>
<thead>
<tr>
<th>( d_1 )</th>
<th>3.4</th>
<th>( T = \frac{23}{6} = 3.83 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( d_2 )</td>
<td>2.6</td>
<td>( T = \frac{23}{6} = 2.83 )</td>
</tr>
</tbody>
</table>

\[ d_1 = 3.4T \]
\[ d_2 = 2.6(T-1) \]

\[ d_1 + d_2 = 20.4 \]

\[ 3.4T + 2.6(T-1) = 20.4 \]
\[ 3.4T + 2.6T - 2.6 = 20.4 \]
\[ 6T - 2.6 = 20.4 \]
\[ 6T + 2.6 = 22 \]
\[ \frac{6T = 22}{6} \]
\[ t = \frac{35}{6} \text{ hr} \]
Aleksandra Tomich invested $8,760, part at 6% simple interest and part at 3% simple interest for a period of 1 year. How much did she invest at each rate if each account earned the same interest?

Aleksandra invested $\square$ at 6% and $\square$ at 3%.

\[
\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{\text{Time in Years}}
\]

\[
\begin{array}{ccc}
\text{Principal} & \times \text{Rate} & \times \text{Time} = \text{Interest} \\
3\% & \times 0.03 & 1 \\
6\% & \times 0.06 & 1 \\
\text{Total} & & 1 \\
8760 - x & \times 0.06 & 1 \\
8760 - x & & 1 \\
8760 & & ?
\end{array}
\]

**Interest for Both Investments Is The SAME**

\[
\text{Equation} - \text{Interest Equal}
\]

\[
0.03x = 0.06(8760 - x)
\]

\[
0.03x = 525.6 - 0.06x
\]

\[
0.09x = 525.6
\]

\[
x = 5840
\]

6% = $8,760 - 5,840 = 2,920$