1. Brittney found some coins while looking under her sofa pillows. There were equal numbers of nickels and quarters, and twice as many half-dollars as quarters. If she found $2.60 in all, how many of each denomination of coin did she find?

<table>
<thead>
<tr>
<th></th>
<th>Amt</th>
<th>Value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickle</td>
<td>x</td>
<td>.05</td>
<td>.05x</td>
</tr>
<tr>
<td>Quart</td>
<td>x</td>
<td>.25</td>
<td>.25x</td>
</tr>
<tr>
<td>Half-D</td>
<td>2x</td>
<td>.5</td>
<td>1x</td>
</tr>
</tbody>
</table>

\[0.05x + 0.25x + 1x = 2.60 \]
\[0.30x = 2.60 \]
\[13x = 26 \]
\[x = 2 \]

2 Nickles, 2 Quarters, 4 HalfDollars

2. In 2008, the general admission to the Planes of Fame Air Show at the Chino Airport was $14 for adults and $11 for children and seniors. If $24,726 was collected from the sale of 2010 general admission tickets, how many adult tickets were sold?

<table>
<thead>
<tr>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult</td>
<td>x</td>
<td>14</td>
<td>14x</td>
</tr>
<tr>
<td>Child/Sen.</td>
<td>2010-x</td>
<td>11</td>
<td>11(2010-x)</td>
</tr>
</tbody>
</table>

\[14x + 2211(2010-x) = 24726 \]
\[3x + 22110 = 24726 \]
\[3x = 2614 \]
\[x = 872 \]

872 adult tickets.
8138 children tickets.

3. Atlanta and Cincinnati are 440 miles apart. Justin leaves Atlanta driving toward Cincinnati at an average speed of 60 mph. Daniel leaves Cincinnati at the same time driving toward Atlanta in his antique auto, averaging 28 mph. How long will it take them to meet?

\[60x + 28x = 440 \]
\[88x = 440 \]
\[x = 5 \]

Justin & Daniel will meet after 5hrs.

4. Agents Mulder and Scully are driving to Georgia to investigate "Big Blue": a giant aquatic reptile reported to inhabit on of the local lakes. Mulder leaves Washington at 8:30 am and averages 65 mph. His partner, Scully leaves at 9:00 am, following the same path and averaging 70 mph. At what time ill Scully catch up with Mulder?

\[65x = 70x - 35 \]
\[-5x = 35 \]
\[x = 7 \]

After 7 hours they will meet. At 3:30 pm
5. Solve each of the inequalities. Give each solution set in interval notation and graph it.
   a. $3x - 6 \geq -24$
   \[
   \begin{align*}
   3x & \geq -18 \\
   x & \geq -6 \\
   [\ -6, \infty) \\
   \end{align*}
   \]
   
   b. $2x + 10 < 8$
   \[
   \begin{align*}
   2x & < -2 \\
   x & < -1 \\
   (-\infty, -1) \\
   \end{align*}
   \]
   
   c. $-3(x - 6) > 2x - 2$
   \[
   \begin{align*}
   -3x + 18 > 2x - 2 \\
   -5x > -20 \\
   x < 4 \\
   (-\infty, 4) \\
   \end{align*}
   \]
   
   d. $-19 < 3x - 5 \leq 1$
   \[
   \begin{align*}
   -14 < 3x & \leq 4 \\
   -\frac{14}{3} & < x \leq 2 \\
   (-\frac{14}{3}, 2] \\
   \end{align*}
   \]

6. To achieve the maximum benefit from exercising, the heart rate in beats per minute should be in the target heart rate zone (THR). For a person aged $A$ the formula is
   \[
   0.7(220 - A) \leq THR \leq 0.85(220 - A)
   \]
   Find the THR to the nearest whole number for each age.
   a) 35  
   \[
   0.7(185) \leq THR \leq 0.85(185) \\
   130 \leq THR \leq 157 	ext{ bpm}
   \]
   b) 18  
   \[
   0.7(208) \leq THR \leq 0.85(202) \\
   141 \leq THR \leq 172 	ext{ bpm}
   \]
   c) Your age  
   \[
   \text{answers will vary}
   \]

7. Jacob is signing up for a cell phone plan service. He is trying to decide between Plan A, which costs $54.99 per month with a free phone included and Plan B, which costs $49.99 per month, but would require him to purchase a phone for $129. After how many months will Plan B be the better deal?

   Let $x$ = months with service

   \[
   \begin{align*}
   \text{Plan A} & = 54.99x \\
   \text{Plan B} & = 49.99x + 129 \\
   \\
   54.99x & = 49.99x + 129 \\
   5x & = 129 \\
   x & = 25.8
   \end{align*}
   \]

After 26 months plan B will be a better plan.