List your steps to support your solutions. Express your solutions to the word problems in complete sentences.

1. Compute the ideal body weight in pounds of a man 70 inches tall using the Devine Formula, 
   \[ w = 110 + 5.06(h - 60) \], where \( w \) is ideal body weight, in pounds, and \( h \) is height, in inches.
   \[ w = 110 + 5.06(70 - 60) \]
   \[ w = 110 + 5.06(10) \]
   \[ w = 160.6 \]
   The ideal body weight is 160.6 lbs.

2. The formula \( R = W + pW \) gives the retail price of \( R \) for an item with a wholesale price \( W \) that is marked up \( p \) percent (in decimal form). Determine the retail price of a pair of jeans with a wholesale price of $37.00 that is marked up 50%.
   \[ R = 37 + 0.5(37) \]
   \[ R = 37 + 18.50 \]
   \[ R = 55.50 \]
   The retail price was $55.50.

3. A small airplane is thought to have crashed in the triangular region formed by these three islands. Using the measurements in the diagram, find the area of the triangle. Round to the nearest square mile.

   \[ A = \frac{1}{2}bh \]
   \[ A = \frac{1}{2}(728)(461) \]
   \[ A = 364(461) \]
   \[ A = 167804 \]
   The area is 167,804 mi².

4. A man has a rectangular garden. One length of the garden lies along a patio wall. However, the rest of the garden is enclosed by 35 feet of fencing. If the length of the garden is three times its width, what is the area of the garden?

   \[ w + w + 3w = 35 \]
   \[ 5w = 35 \]
   \[ w = 7 \]
   \[ \text{length} = 3w = 21 \]
   \[ \text{Area} = 21(7) = 147 \]
   The area is 147 ft².

5. Find the perimeter and area of the trapezoid shown.

   \[ P = 27.4 + 17.3 + 26.9 + 45.5 \]
   \[ P = 117.1 \]
   \[ A = \frac{1}{2}(23.2)(17.3 + 45.5) \]
   \[ A = (11.6)(62.8) = 728.48 \]
   The perimeter is 117.1 cm and the area is 728.48 cm².

6. Use the distance formula, \( d = rt \), to find the distance traveled at 58 mph for 3.6 hours.
   \[ d = 58 (3.6) \]
   \[ d = 208.8 \]
   The distance is 208.8 miles.

7. Solve \( T = \frac{7}{4}M + 26 \) for \( M \).

   \[ 2 \left( T - 24 \right) = \left( \frac{7}{4} M \right) \frac{2}{7} \]
   \[ \frac{2}{7} T - \frac{52}{7} = M \]
8. Manuel traveled 4 hours nonstop to Mexico, a total of 144 miles. He took a train part of the way, which averaged 40 mph, and then took a bus the remaining distance, which averaged 30 mph. How long was Manuel on the train?

\[
\begin{array}{c|c|c}
\text{Train} & 40t & 40t \\
\text{Bus} & 30(4-t) & 30(4-t)
\end{array}
\]

\[
40t + 30(4-t) = 144 \\
40t + 120 - 30t = 144 \\
10t + 120 = 144 \\
-120 \\
10t = 24 \\
\frac{10t}{10} = \frac{24}{10} \\
t = 2.4
\]

He traveled by train for 2.4 hours.

9. Tina drove her car at a rate of 60 mph from her home to Rochester. Her mother, Linda, made the same trip at a rate of 80 mph, and it took her 2 hours less than it took Tina to make the trip. How far is Tina’s home from Rochester?

\[
\begin{array}{c|c|c}
\text{Tina} & 60t & 60t \\
\text{Mother} & 80t-2 & 80(t-2)
\end{array}
\]

\[
60t = 80(t-2) \\
60t = 80t - 160 \\
-20t = -160 \\
t = 8 \text{ hrs}.
\]

\[
60(8) = 480
\]

Tina’s home is 480 miles from Rochester.

10. The second side of a triangular deck is 6 feet longer than the shortest side and a third side that is 6 feet shorter than twice the length of the shortest side. If the perimeter of the deck is 80 feet, what are the lengths of the three sides?

\[
\begin{align*}
4x &= 80 \\
x &= 20 \\
2x &= 40 \\
2x-6 &= 40-6 = 34
\end{align*}
\]

The lengths are 20, 34, and 34 ft.

11. Two complementary angles are \((10x-1)^\circ\) and \((4x+7)^\circ\). Find their measures.

\[
\begin{align*}
10x-1 + 4x+7 &= 90 \\
14x+6 &= 90 \\
14x &= 84 \\
x &= 6 \\
4x+7 &= 4(6)+7 = 24+7 = 31 \\
10x-1 &= 10(6)-1 = 60-1 = 59
\end{align*}
\]

The angles measure 31° and 59°.

12. An isosceles triangle contains two equal angles. Each of these angles is twenty degrees larger than twice the smallest angle. What are the measures of the three angles?

\[
\begin{align*}
x + 2(2x+20) &= 180 \\
x + 4x + 40 &= 180 \\
5x &= 140 \\
x &= 28 \\
2x+20 &= 2(28)+20 = 56+20 = 76
\end{align*}
\]

The angles are 28°, 76°, and 76°.