1. Convert the measurements.
   a. \(1 \text{ km} = 1,000 \text{ m}\)
   b. \(4 \text{ km} = 4,000 \text{ m}\)
   c. \(7 \text{ km} = 7,000 \text{ m}\)
   d. \(18 \text{ km} = 18,000 \text{ m}\)
   e. \(1 \text{ m} = 100 \text{ cm}\)
   f. \(3 \text{ m} = 300 \text{ cm}\)
   g. \(80 \text{ m} = 8,000 \text{ cm}\)
   h. \(120 \text{ m} = 12,000 \text{ cm}\)

2. Convert the measurements.
   a. \(3 \text{ km} 312 \text{ m} = 3,312 \text{ m}\)
   b. \(13 \text{ km} 27 \text{ m} = 13,027 \text{ m}\)
   c. \(915 \text{ km} 8 \text{ m} = 915,008 \text{ m}\)
   d. \(3 \text{ m} 56 \text{ cm} = 356 \text{ cm}\)
   e. \(14 \text{ m} 8 \text{ cm} = 1408 \text{ cm}\)
   f. \(120 \text{ m} 46 \text{ cm} = 12,046 \text{ cm}\)

3. Solve.
   a. \(4 \text{ km} - 280 \text{ m}\)
      \[\begin{array}{c}
      4000 \text{ m} \\
      -280 \text{ m} \\
      \hline
      3720 \text{ m}
      \end{array}\]
   c. Express your answer in the smaller unit: \(1 \text{ km} 431 \text{ m} + 13 \text{ km} 169 \text{ m}\)
      \[\begin{array}{c}
      1431 \text{ m} \\
      +13,169 \text{ m} \\
      \hline
      14,600 \text{ m}
      \end{array}\]
   e. \(67 \text{ km} 230 \text{ m} + 11 \text{ km} 879 \text{ m}\)
      \[\begin{array}{c}
      67,230 \text{ m} \\
      +11,879 \text{ m} \\
      \hline
      79,109 \text{ m}
      \end{array}\]
   b. \(1 \text{ m} 15 \text{ cm} - 34 \text{ cm}\)
      \[\begin{array}{c}
      115 \text{ cm} \\
      -34 \text{ cm} \\
      \hline
      81 \text{ cm}
      \end{array}\]
   d. Express your answer in the smaller unit: \(231 \text{ m} 31 \text{ cm} - 14 \text{ m} 48 \text{ cm}\)
      \[\begin{array}{c}
      231,31 \text{ cm} \\
      -1,448 \text{ cm} \\
      \hline
      21,683 \text{ cm}
      \end{array}\]
   f. \(67 \text{ km} 230 \text{ m} - 11 \text{ km} 879 \text{ m}\)
      \[\begin{array}{c}
      67,230 \text{ m} \\
      -11,879 \text{ m} \\
      \hline
      55,351 \text{ m}
      \end{array}\]
Use a tape diagram to model each problem. Solve using a simplifying strategy or an algorithm, and write your answer as a statement.

4. The length of Carter’s driveway is 12 m 38 cm. His neighbor’s driveway is 4 m 99 cm longer. How long is his neighbor’s driveway?

\[
\begin{array}{c}
\text{12 m 38 cm} \\
\text{4 m 99 cm} \\
\hline
1,737 \text{ cm}
\end{array}
\]

The neighbor’s driveway is 1,737 cm long.

5. Enya walked 2 km 309 m from school to the store. Then, she walked from the store to her home. If she walked a total of 5 km, how far was it from the store to her home?

\[
\begin{array}{c}
5 \text{ km} \\
2,309 \text{ m} \\
\hline
2,691 \text{ m}
\end{array}
\]

It is 2,691 m from the store to Enya’s home.

6. Rachael has a rope 5 m 32 cm long that she cut into two pieces. One piece is 249 cm long. How many centimeters long is the other piece of rope?

\[
\begin{array}{c}
5 \text{ m 32 cm} \\
249 \text{ cm} \\
\hline
283 \text{ cm}
\end{array}
\]

The other piece of rope is 283 cm long.

7. Jason rode his bike 529 fewer meters than Allison. Jason rode 1 km 850 m. How many meters did Allison ride?

\[
\begin{array}{c}
1 \text{ km 850 cm} \\
529 \text{ cm} \\
\hline
2,379 \text{ m}
\end{array}
\]

Allison rode 2,379 m.
Lesson 2 Problem Set 4.2

Name ___________________________ Date ____________________

1. Complete the conversion table.

<table>
<thead>
<tr>
<th>Mass</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>kg</td>
<td>g</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>17,000</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>300,000</td>
<td></td>
</tr>
</tbody>
</table>

2. Convert the measurements.

a. $1 \text{ kg } 500 \text{ g } = \underline{1,500 \text{ g}}$

b. $3 \text{ kg } 715 \text{ g } = \underline{3,715 \text{ g}}$

c. $17 \text{ kg } 84 \text{ g } = \underline{17,084 \text{ g}}$

d. $25 \text{ kg } 9 \text{ g } = \underline{25,009 \text{ g}}$

e. $7 \text{ kg } 481 \text{ g } = \underline{7,481 \text{ g}}$

f. $210 \text{ kg } 90 \text{ g } = \underline{210,090 \text{ g}}$

3. Solve.

a. $3,715 \text{ g } - 1,500 \text{ g}$

\[
\begin{align*}
\frac{3,715 \text{ g}}{} & - \frac{1,500 \text{ g}}{} \\
\hline
& \frac{2,215 \text{ g}}{}
\end{align*}
\]

c. Express the answer in the smaller unit:
$25 \text{ kg } 9 \text{ g } + 24 \text{ kg } 991 \text{ g}$

\[
\begin{align*}
\frac{25,009 \text{ g}}{} & + \frac{24,991 \text{ g}}{} \\
\hline
& \frac{50,000 \text{ g}}{}
\end{align*}
\]

d. Express the answer in the smaller unit:
$27 \text{ kg } 650 \text{ g } - 20 \text{ kg } 990 \text{ g}$

\[
\begin{align*}
\frac{27,650 \text{ g}}{} & - \frac{20,990 \text{ g}}{} \\
\hline
& \frac{6,660 \text{ g}}{}
\end{align*}
\]

e. Express the answer in mixed units:
$14 \text{ kg } 505 \text{ g } - 4,288 \text{ g}$

\[
\begin{align*}
\frac{14,505 \text{ g}}{} & - \frac{4,288 \text{ g}}{} \\
\hline
& \frac{10,217 \text{ g}}{} \text{ or } 10\text{ kg } 217 \text{ g}
\end{align*}
\]

f. Express the answer in mixed units:
$5 \text{ kg } 658 \text{ g } + 57,481 \text{ g}$

\[
\begin{align*}
\frac{5,658 \text{ g}}{} & + \frac{57,481 \text{ g}}{} \\
\hline
& \frac{63,139 \text{ g}}{} \text{ or } 63\text{ kg } 139 \text{ g}
\end{align*}
\]
Use a tape diagram to model each problem. Solve using a simplifying strategy or an algorithm, and write your answer as a statement.

4. One package weighs 2 kilograms 485 grams. Another package weighs 5 kilograms 959 grams. What is the total weight of the two packages?

\[
\begin{align*}
\text{2 kg 485 g} & \quad \text{5 kg 959 g} \\
\hline
2,485 \text{ g} & \quad +5,959 \text{ g} \\
\hline
8,444 \text{ g} \\
\end{align*}
\]

The total weight of the 2 packages is 8,444 g.

5. Together, a pineapple and a watermelon weigh 6 kilograms 230 grams. If the pineapple weighs 1 kilogram 255 grams, how much does the watermelon weigh?

\[
\begin{align*}
\text{6 kg 230 g} & \quad \text{1 kg 255 g} \\
\hline
6,230 \text{ g} & \quad -1,255 \text{ g} \\
\hline
4,975 \text{ g} \\
\end{align*}
\]

The watermelon weighs 4,975 g.

6. Javier’s dog weighs 3,902 grams more than Bradley’s dog. Bradley’s dog weighs 24 kilograms 175 grams. How much does Javier’s dog weigh?

\[
\begin{align*}
\text{24 kg 175 g} & \quad \text{3,902 g} \\
\hline
24,175 \text{ g} & \quad +3,902 \text{ g} \\
\hline
28,077 \text{ g} \\
\end{align*}
\]

Javier’s dog weighs 28,077 g.

7. The table to the right shows the weight of three Grade 4 students. How much heavier is Isabel than the lightest student?

<table>
<thead>
<tr>
<th>Student</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isabel</td>
<td>35 kg</td>
</tr>
<tr>
<td>Irene</td>
<td>29 kg 38 g</td>
</tr>
<tr>
<td>Sue</td>
<td>29,238 g</td>
</tr>
</tbody>
</table>

\[
\begin{align*}
35,000 \text{ g} & \quad -29,038 \text{ g} \\
\hline
5,962 \text{ g} \\
\end{align*}
\]

Isabel is 5,962 g heavier than Irene.
1. Complete the conversion table.

<table>
<thead>
<tr>
<th>Liquid Capacity</th>
<th>mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>mL</td>
</tr>
<tr>
<td>1</td>
<td>1,000</td>
</tr>
<tr>
<td>5</td>
<td>5,000</td>
</tr>
<tr>
<td>38</td>
<td>38,000</td>
</tr>
<tr>
<td>49</td>
<td>49,000</td>
</tr>
<tr>
<td>54</td>
<td>54,000</td>
</tr>
<tr>
<td>92</td>
<td>92,000</td>
</tr>
</tbody>
</table>

2. Convert the measurements.

a. $2 \, 500 \, mL = \underline{2,500} \, mL$

b. $70 \, 850 \, mL = \underline{70,850} \, mL$

c. $33 \, 15 \, mL = \underline{33,015} \, mL$

d. $2 \, 8 mL = \underline{2,008} \, mL$

e. $3,812 \, mL = \underline{3} \, \underline{812} \, mL$

f. $86,003 \, mL = \underline{86} \, \underline{L} \, 3 \, mL$

3. Solve.

a. $1,760 \, mL + 40 \, L$

\[
\frac{1,760 \, mL}{41,760 \, mL} + 40 \, 000 \, mL = \frac{41,760 \, mL}{41,760 \, mL}
\]

c. Express the answer in the smaller unit:

$25 \, L \, 478 \, mL + 3 \, L \, 812 \, mL$

\[
\frac{25 \, 478 \, mL}{29 \, 290 \, mL} + 3 \, 812 \, mL = \frac{29 \, 290 \, mL}{29 \, 290 \, mL}
\]

e. Express the answer in mixed units:

$7 \, L \, 425 \, mL - 547 \, mL$

\[
\frac{7 \, 425 \, mL}{6 \, 878 \, mL \, or \, 6 \, 878 \, mL} - 547 \, mL = \frac{6 \, 878 \, mL \, or \, 6 \, 878 \, mL}{6 \, 878 \, mL \, or \, 6 \, 878 \, mL}
\]

b. $7 \, L - 3,400 \, mL$

\[
\frac{7 \, 000 \, mL}{3,600 \, mL} - 3,400 \, mL = \frac{3,600 \, mL}{3,600 \, mL}
\]

d. Express the answer in the smaller unit:

$21 \, L - 2 \, L \, 8 \, mL$

\[
\frac{21 \, 000 \, mL}{18,992 \, mL} - 2 \, 008 \, mL = \frac{18,992 \, mL}{18,992 \, mL}
\]

f. Express the answer in mixed units:

$31 \, L \, 433 \, mL - 12 \, L \, 876 \, mL$

\[
\frac{31 \, 433 \, mL}{18,557 \, mL \, or \, 18 \, 557 \, mL} - 12 \, 876 \, mL = \frac{18,557 \, mL \, or \, 18 \, 557 \, mL}{18,557 \, mL \, or \, 18 \, 557 \, mL}
\]
Use a tape diagram to model each problem. Solve using a simplifying strategy or an algorithm, and write your answer as a statement.

4. To make fruit punch, John’s mother combined 3,500 milliliters of tropical drink, 3 liters 95 milliliters of ginger ale, and 1 liter 600 milliliters of pineapple juice.
   a. Order the quantity of each drink from least to greatest.

   least  
   ↓  
   greatest

   pineapple juice
   1,600 mL
   3,095 mL
   ginger ale
   3,500 mL
   tropical drink

   b. How much punch did John’s mother make?

   \[
   \frac{1,600 \text{ mL}}{3,095 \text{ mL}} + 3,500 \text{ mL} = 8,195 \text{ mL of punch.}
   \]

5. A family drank 1 liter 210 milliliters of milk at breakfast. If there were 3 liters of milk before breakfast, how much milk is left?

6. Petra’s fish tank contains 9 liters 578 milliliters of water. If the capacity of the tank is 12 liters 455 milliliters of water, how many more milliliters of water does she need to fill the tank?