1. Complete the following conversion charts:

<table>
<thead>
<tr>
<th>Length</th>
<th>Mass</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 km</td>
<td>3,000 g</td>
<td>4 L 4000 mL</td>
</tr>
<tr>
<td>9 km</td>
<td>9,000 m</td>
<td>48 L 808 mL</td>
</tr>
<tr>
<td>6 km 435 m</td>
<td>1,074 g</td>
<td>2 L 20 mL</td>
</tr>
<tr>
<td>12 km 12 m</td>
<td>12,012 m</td>
<td>639 L 6 mL</td>
</tr>
<tr>
<td></td>
<td>20 kg 300 g</td>
<td>403 kg 4 g</td>
</tr>
<tr>
<td></td>
<td>20,300 g</td>
<td>403,004 g</td>
</tr>
</tbody>
</table>

2. A student completed the problem below. Check his work. Explain how you know if each solution is correct or incorrect.

Convert the following measurements:

- a. 24 km = 24,000 m
- b. 16 L = 16,000 mL
- c. 38 kg = 38,000 g

Problems a and b are correct because they are 1,000 meters, mL, or grams in 1 km, L, or kg.

Problem C is wrong. 38 kg is really 38,000 g.

3. Find the sum or difference.

a. 493 km 43 m + 17 km 57 m

\[
\begin{align*}
493 \text{ km} &\quad 43 \text{ m} \\
+ &\quad 17 \text{ km} \quad 57 \text{ m} \\
\hline
510 \text{ km} &\quad 100 \text{ m}
\end{align*}
\]

b. 25 kg 32 g - 23 kg 83 g

\[
\begin{align*}
4 \text{ kg} &\quad 12 \text{ g} \\
28 \text{ kg} &\quad 88 \text{ g} \\
- &\quad 23 \text{ kg} \quad 83 \text{ g} \\
\hline
1 \text{ kg} &\quad 949 \text{ g}
\end{align*}
\]

c. 100 L 99 mL + 2,999 mL

\[
\begin{align*}
100,099 \text{ mL} &\quad 12 \text{ g} \\
&\quad 28,882 \text{ g} \\
+ &\quad 2,999 \text{ mL} \\
\hline
103,098 \text{ mL} &\quad 1,949 \text{ g}
\end{align*}
\]
4. Billy is training for a half-marathon. For the problems below, use tape diagrams, numbers, and words to explain each answer.

a. Each day Billy runs on the treadmill for 5 kilometers and runs on the outdoor track for 6,000 meters. In all, how many meters does Billy run each day?

\[
\begin{align*}
5 \text{ km} &= 5,000 \text{ m} \\
5,000 \text{ m} + 6,000 \text{ m} &= 11,000 \text{ m} \\
R &= 11,000 \text{ m}
\end{align*}
\]

Billy runs 11,000 meters each day.

b. Since Billy has started training, he has also been drinking more water. On Saturday, he drank 2 liters 755 milliliters of water. On Sunday, he drank some more. If Billy drank a total of 4 liters 255 milliliters of water on Saturday and Sunday, how many milliliters of water did Billy drink on Sunday?

\[
\begin{align*}
4 \text{ L} 255 \text{ mL} &= 4,255 \text{ mL} \\
2 \text{ L} 755 \text{ mL} &= 2,755 \text{ mL} \\
3 \text{ L} 12 \text{ mL} &= 3,120 \text{ mL} \\
-2,755 &= 485 \\
1,500 &= W
\end{align*}
\]

Billy drank 1,500 mL of water on Sunday.

c. Since exercising so much for his half-marathon, Billy has been losing weight. In his first week of training, he lost 2 kilograms 530 grams. In the following two weeks of training, he lost 1 kilogram 855 grams each week. Billy now weighs 61 kilograms 760 grams. What was Billy's weight, in grams, before he started training? Explain your thinking.

\[
\begin{align*}
2,530 \text{ g} &
\end{align*}
\]

\[
\begin{align*}
1,855 \text{ g} + 6,240 \text{ g} &= 8,095 \text{ g} \\
61,760 \text{ g} + 855 \text{ g} &= 62,615 \text{ g} \\
W &= 68,000 \text{ g}
\end{align*}
\]

Billy's weight before training was 68,000 grams.

If he lost his weight, he had to weigh more before, so I added all the weight he lost to how much he weighs now for my answer.