Exit Ticket Sample Solutions

1. On a recent survey, 60% of those surveyed indicated that they preferred walking to running.
   a. If 540 people preferred walking, how many people were surveyed?
      
      Let \( n \) represent the number of people surveyed.
      
      0.60 \( n \) is the number of people who preferred walking.
      
      Since 540 people preferred walking,
      
      \[
      0.60n = 540
      \]
      
      \[
      n = \frac{540}{0.6} = \frac{5400}{6} = 900
      \]
      
      Therefore, 900 people were surveyed.

   b. How many people preferred running?
      
      Subtract 540 from 900.
      
      \[
      900 - 540 = 360
      \]
      
      Therefore, 360 people preferred running.

2. Which is greater: 25% of 15 or 15% of 25? Explain your reasoning using algebraic representations or visual models.
   
   They are the same.
   
   \[
   0.25 \times 15 = \frac{25}{100} \times 15 = 3.75
   \]
   
   \[
   0.15 \times 25 = \frac{15}{100} \times 25 = 3.75
   \]
   
   Also, you can see they are the same without actually computing the product because of any order, any grouping of multiplication.
   
   \[
   \frac{25}{100} \times 15 = 25 \times \frac{1}{100} \times 15 = 25 \times \frac{15}{100}
   \]

Problem Set Sample Solutions

Students should be encouraged to solve these problems using an algebraic approach.

1. Represent each situation using an equation. Check your answer with a visual model or numeric method.
   
   a. What number is 40% of 90?
      
      \[
      n = 0.40(90)
      \]
      
      \[
      n = 36
      \]

   b. What number is 45% of 90?
      
      \[
      n = 0.45(90)
      \]
      
      \[
      n = 40.5
      \]
c. 27 is 30% of what number?

\[
\begin{align*}
27 &= 0.3n \\
\frac{27}{0.3} &= 1n \\
90 &= n
\end{align*}
\]

d. 18 is 30% of what number?

\[
\begin{align*}
0.30n &= 18 \\
\frac{18}{0.3} &= n \\
n &= 60
\end{align*}
\]

e. 25.5 is what percent of 85?

\[
\begin{align*}
25.5 &= p(85) \\
\frac{25.5}{85} &= 1p \\
0.3 &= p
\end{align*}
\]

\[
0.3 = \frac{30}{100} = 30\%
\]

f. 21 is what percent of 60?

\[
\begin{align*}
21 &= p(60) \\
\frac{21}{60} &= 1p \\
0.35 &= p
\end{align*}
\]

\[
0.35 = \frac{35}{100} = 35\%
\]

2. 40% of the students on a field trip love the museum. If there are 20 students on the field trip, how many love the museum?

Let \(s\) represent the number of students who love the museum.

\[
s = 0.40(20)
\]

\[
s = 8
\]

Therefore, 8 students love the museum.

3. Maya spent 40% of her savings to pay for a bicycle that cost her $85.

a. How much money was in her savings to begin with?

Let \(s\) represent the unknown amount of money in Maya’s savings.

\[
85 = 0.4s
\]

\[
212.5 = s
\]

Maya originally had $212.50 in her savings.

b. How much money does she have left in her savings after buying the bicycle?

\[
$212.50 – $85.00 = $127.50
\]

She has $127.50 left in her savings after buying the bicycle.