NS6-104: Finding Percents

If you use a thousands cube to represent 1 whole, you can see that taking \( \frac{1}{10} \) of a number is the same as dividing the number by 10 – the decimal shifts one place left.

\[
\frac{1}{10} \text{ of 1} = .1 \quad \frac{1}{10} \text{ of } .1 = .01 \quad \frac{1}{10} \text{ of } .01 = .001
\]

1. Find \( \frac{1}{10} \) of the following numbers by shifting the decimal. Write your answers in the boxes provided.
   a) 4  
   b) 7  
   c) 32  
   d) 120  
   e) 3.8  
   f) 2.5  

2. 10% is short for \( \frac{1}{10} \). Find 10% of the following numbers.
   a) 9  
   b) 5.7  
   c) 4.05  
   d) 6.35  
   e) .06  
   f) 21.1  

3. You can find percents that are multiples of 10 as follows.
   
   \text{Example:} \quad \text{Finding 30\% of 21 is the same as finding 10\% of 21 and multiplying the result by 3.}
   
   \text{Step 1:} \quad 10\% \text{ of } 21 = 2.1
   
   \text{Step 2:} \quad 3 \times 2.1 = 6.3 \quad \rightarrow \quad \text{so 30\% of } 21 = 6.3

   Find the percents using the method above.
   a) 40\% of 15
      i) 10\% of 15 = 
      ii) \text{ } \times \text{ } = 
   b) 60\% of 25
      i) 10\% of ____ = 
      ii) ____ \times ____ = 
   c) 90\% of 2.3
      i) 10\% of ____ = 
      ii) ____ \times ____ = 
   d) 60\% of 35
      i) 10\% of ____ = 
      ii) ____ \times ____ = 
   e) 40\% of 24
      i) 10\% of ____ = 
      ii) ____ \times ____ = 
   f) 20\% of 1.3
      i) 10\% of ____ = 
      ii) ____ \times ____ = 

Number Sense 2
NS6-105: Finding Percents (Advanced)

35% is short for \( \frac{35}{100} \). To find 35% of 27, Sadie finds \( \frac{35}{100} \) of 27.

**Step 1:** She multiplies 27 by 35.

\[
\begin{array}{c}
2 & 3 \\
2 & 7 \\
\times & 3 & 5 \\
1 & 3 & 5 \\
8 & 1 & 0 \\
9 & 4 & 5 \\
\end{array}
\]

**Step 2:** She divides the result by 100.

\[945 \div 100 = 9.45\]

So 35% of 27 is 9.45.

1. Find the following percents using Sadie’s method.

   a) 45% of 32

   **Step 1:**

   **Step 2:**

   \[
   \frac{\_ \_ \_}{\_ \_ \_} \div 100 = \]

   So \( \_ \_ \_ \) of \( \_ \_ \_ \) is \( \_ \_ \_ \).

   b) 28% of 63

   **Step 1:**

   **Step 2:**

   \[
   \frac{\_ \_ \_}{\_ \_ \_} \div 100 = \]

   So \( \_ \_ \_ \) of \( \_ \_ \_ \) is \( \_ \_ \_ \).

2. Find the following percents using Sadie’s method.

   a) 13% of 9  
   b) 52% of 7  
   c) 65% of 8  
   d) 78% of 9

   e) 23% of 42  
   f) 17% of 68  
   g) 37% of 80  
   h) 62% of 75

3. 25% is equal to \( \frac{1}{4} \) and 75% is equal to \( \frac{3}{4} \). Find ...

   a) 25% of 80  
   b) 25% of 280  
   c) 25% of 12  
   d) 75% of 20  
   e) 75% of 320

Number Sense 2
1. Find the missing percent of each child's stamp collection that comes from other countries.
   HINT: Change all fractions to percents.

   a) Anne's collection:
      | Canada | USA | Other |
      | 40%    | 1/2 |      |
      = 40% = 50% = 10%

   b) Brian's collection:
      | Canada | England | Other |
      | 80%    | 1/10    |      |

   c) Juan's collection:
      | Mexico | USA | Other |
      | 1/2    | 40% |      |

   d) Lanre's collection:
      | Canada | Nigeria | Other |
      | 22%    | 3/5    |      |

   e) Faith's collection:
      | Jamaica | Canada | Other |
      | 3/4     | 15%    |      |

   f) Carlo's collection:
      | France | Italy | Other |
      | 3/4    | 10%   |      |

2. A painter spends $500.00 on art supplies. Complete the chart.

<table>
<thead>
<tr>
<th>Fraction of Money Spent</th>
<th>Percentage of Money Spent</th>
<th>Amount of Money Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brushes</td>
<td></td>
<td>$50.00</td>
</tr>
<tr>
<td>Paint</td>
<td>4/10</td>
<td>50%</td>
</tr>
<tr>
<td>Canvas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Indra spent 1 hour doing homework. The chart shows the time she spent on each subject.
   a) Complete the chart.
   b) How did you find the amount of time spent on math?

<table>
<thead>
<tr>
<th>Subject</th>
<th>Fraction of 1 hour</th>
<th>Percent of 1 hour</th>
<th>Decimal</th>
<th>Number of minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1/4</td>
<td>.25</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Science</td>
<td>1/20</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French</td>
<td></td>
<td></td>
<td>.20</td>
<td></td>
</tr>
</tbody>
</table>

4. Roger wants to buy a deck of cards that costs $8.00. The taxes are 15%. How much did he pay in taxes?

5. There are 15 boys and 12 girls in a class.
   \( \frac{3}{4} \) of the girls have black hair, and 60% of the boys have black hair.
   How many children have black hair?