PERCENTAGES: Solutions

**puzzle #1**

If a merchant in a market sold loaves of bread for 8 coins a loaf, how many loaves would she need to sell in a day in order to pay the tax of "one part per hundred"? Assume she has to pay with a whole number of coins.

**ANSWER TO PUZZLE 1:**

The first multiple 8 that is a group of one-hundreds is 400. That amounts to selling 50 loaves of bread (50 x 8 = 400). After selling 50 loaves of bread the baker can then give 4 whole coins over for tax.

She can do this for each group of 50 loaves she sells.

**puzzle #2**

It is not always obvious how to rewrite a fraction as a percentage. Which of the following fractions are easier to write as a percentage than the others?

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/20</td>
<td>5%</td>
</tr>
<tr>
<td>3/5</td>
<td>60%</td>
</tr>
<tr>
<td>2/3</td>
<td>66 2/3 %</td>
</tr>
<tr>
<td>8/25</td>
<td>32%</td>
</tr>
<tr>
<td>2/15</td>
<td>13 1/3 %</td>
</tr>
<tr>
<td>4/7</td>
<td>57 1/7 %</td>
</tr>
<tr>
<td>1/8</td>
<td>12 1/2 %</td>
</tr>
</tbody>
</table>

**ANSWER TO PUZZLE 2:**

The fractions 2/3 and 2/15 and 4/7 are hard to turn into percentages. The fraction 1/8 is tricky too!

We have

- $1/20 = 5\%$
- $3/5 = 60\%$
- $2/3 = 66 2/3 \%$
- $8/25 = 32\%$
- $2/15 = 13 1/3 \%$
- $4/7 = 57 1/7 \%$
- $1/8 = 12 1/2 \%$

**About the Author: Dr. James Tanton**

The NMF Weekly is written by mathematician Dr. James Tanton as a resource for friends and fans of the 2021 National Math Festival.

Learn more at globalmathproject.org/nmf-weekly & nationalmathfestival.org

**This website** might help if you are interested (https://gdaymath.com/lessons/fractions/4-2-egyptian-fractions/).