Name. **Hints and Answers**

1. The following grouped data is from a *sample* of well ground water depths.

<table>
<thead>
<tr>
<th>Distance from ground to water level (ft), $x$</th>
<th>26 - 30</th>
<th>31 - 35</th>
<th>36 - 40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of wells, $f$</td>
<td>5</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>

(a) Estimate the mean ground water depth.

(b) Estimate the standard deviation for the ground water depth.

(c) Estimate the coefficient of variation.

**Answer.** First

\[
\sum x f = (28)(5) + (33)(13) + (38)(6) = 797,
\]

\[
\sum x^2 f = (28^2)(5) + (33^2)(13) + (38^2)(6) = 26741.
\]

Thus:

(a) \( \bar{x} \approx \frac{\sum x f}{n} = \frac{797}{24} = 33.2083 \);

(b) \( s \approx \sqrt{\frac{\sum x^2 f - \sum x f}{n - 1}} = \sqrt{\frac{26741 - \frac{797^2}{24}}{23}} \approx \sqrt{11.911231} \approx 3.45127; \) and

(c) \( C.V. = \frac{s}{\bar{x}} \cdot 100\% \approx 10.39\% \)