4.

**Given:** \( \angle TEV = \angle XEW \)

**Prove:** \( \angle TEW = \angle XEV \)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ( \angle TEV = \angle XEW )</td>
<td>1. Given</td>
</tr>
<tr>
<td>2. ( \angle TEW = \angle XEV )</td>
<td>2. If an ( \angle ) is added to 2 = ( \angle )s, then the resulting ( \angle )s are =</td>
</tr>
</tbody>
</table>

5.

**Given:**
- \( AC = DF \)
- \( BC = EF \)

**Prove:** \( AB = DE \)

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<td>1. ( AC = DF )</td>
<td>1. Given</td>
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<td>2. ( BC = EF )</td>
<td>2. Given</td>
</tr>
<tr>
<td>3. ( AB = DE )</td>
<td>3. If ( = ) segments are subtracted from ( = ) segments, then the resulting segments are =</td>
</tr>
</tbody>
</table>
7. Based on the information given, what should be the "prove" statement?

Given: \( \angle PNO = \angle PON \)
\( \angle 1 = \angle 2 \)

Prove: \( \angle 3 = \angle 4 \)

8. Based on the information given, what should be the "prove" statement?

Given: \( \angle T \) is compl. to \( \angle W \)
\( \angle X \) is compl. to \( \angle Z \)
\( \angle Z = \angle W \)

Prove: \( \angle T = \angle X \)
9.

**Given:** \( QR = ST \)

**Find:** \( QS \) and \( QT \)

Since \( QR = ST \), \( QS = RT \) by the Addition Property of \( = \) Segments. So,

\[
5x + 17 = 10 - 2x \\
\therefore QS = 5(-1) + 17 = 12
\]

\[
\Rightarrow 7x = -7
\]

\[
\Rightarrow x = -1
\]

and

\[
QT = QS + RT - RS
\]

\[
= 12 + 12 - 3 = 21
\]

14.

**Given:**
- \( \angle A \) is comp. to \( \angle B \)
- \( \angle C \) is comp. to \( \angle B \)
- \( m\angle A = (3x + y) \)
- \( m\angle B = (x + 4y + 2) \)
- \( m\angle C = (3y - 3) \)

**Find:** \( m\angle B \)

\[
3x + y = 3y - 3 \text{    Why?} \\
\Rightarrow 3x - 2y = -3
\]

\[
3x + y = 3y - 3 \text{    Why?}  \\
(3x + y) + (x + 4y + 2) = 90 \text{    Why?} \\
\Rightarrow 4x + 5y = 88
\]

\[
\begin{align*}
x - 4 & \quad \quad 12x + 15y = 264 \\
+ & \quad -12x + 8y = 12 \\
\hline
\quad & \quad 23y = 276 \\
\Rightarrow & \quad y = 12 \\
\therefore m\angle B = 7 + 4(12) + 2 & \quad = 57^\circ
\end{align*}
\]

\[
\Rightarrow 3x - 2(12) = -3
\]

\[
\Rightarrow x = 7
\]
17.

Given: \( BF \text{ bisects } \angle DBE \)

a. Does \( BF \) bisect \( \angle CBA \)?

\[
(3x + 7) = (5x - 35) \\
x = 21
\]

\( \Rightarrow m_\angle DBC = 2(21) - 22 = 20^\circ \)

\( \Rightarrow BF \text{ bisects } \angle CBA \)

b. What did you discover about \( \angle ABC \) and \( BF \)?

\( m_\angle ABC = 20 + 70 + 20 + 70 = 180^\circ \)

\( \therefore BF \perp AC \text{ and } BF \text{ bisects } \angle ABC \)

18.

If 2 \( \angle \)s are chosen at random from the 10 \( \angle \)s in the diagram, what is the probability that

a. The sum of their measures is less than 90?

\[
P = \frac{30^\circ \angle \text{ chosen}}{\text{Total angles}} \text{ AND } \frac{30^\circ \angle \text{ chosen}}{\text{Angles - 1}}
\]

\[
= \left( \frac{4}{10} \right) \left( \frac{3}{9} \right) = \left( \frac{2}{5} \right) \left( \frac{1}{3} \right) = \frac{2}{15}
\]

b. They are complementary?

\[
P = \frac{30^\circ \angle \text{ chosen}}{\text{Total angles}} \text{ AND } \frac{60^\circ \angle \text{ chosen}}{\text{Angles - 1}}
\]

\[
\text{OR }
\]

\[
= \frac{60^\circ \angle \text{ chosen}}{\text{Total angles}} \text{ AND } \frac{30^\circ \angle \text{ chosen}}{\text{Angles - 1}}
\]

\[
= \left( \frac{4}{10} \right) \left( \frac{3}{9} \right) + \left( \frac{3}{10} \right) \left( \frac{4}{9} \right) = \frac{4}{15}
\]
19. Find the measure of the angle formed by the hands of the clock at 5:55 a.m.

Whole partitions: \( 5(30^\circ) = 150^\circ \)

Hr. hand: \( \frac{5}{60} (30^\circ) = 2.5^\circ \)

\( \Rightarrow \) the \( \angle \) measures 152.5°