# Basic Vocab Review

1. **Complement & Supplement**

<table>
<thead>
<tr>
<th>Measure of Given Angle</th>
<th>Measure of Complement</th>
<th>Measure of Supplement</th>
</tr>
</thead>
<tbody>
<tr>
<td>13°</td>
<td>77°</td>
<td>167°</td>
</tr>
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</table>

2. **Vertical Angles**

\[
x = \frac{14}{115°} \quad m\angle 1 = \frac{115°}{115°} \quad m\angle 2 = \frac{115°}{115°} \\
m\angle 3 = \frac{115°}{115°} \quad m\angle 4 = \frac{115°}{115°}
\]

(\text{2x + 37}) \quad \angle 1 \quad \angle 2 \quad \angle 3 \quad \angle 4

3. **Name a pair of angles.**

- Alternate Exterior \( \angle 2, \angle 4 \)
- Same Side Interior \( \angle 2, \angle 4 \)
- Alternate Interior \( \angle 1, \angle 2 \)
- Corresponding, \( \angle 3, \angle 5 \)

4. If \( m\angle 2 + m\angle 4 = 180° \), then lines \( e, n \) are parallel, the transversal is line \( j \) and

5. the angle relationship is **Consecutive Interior** (same side)

\[
2x + 37 = 3x + 23 \\
-2x \quad -2x
\]

\[
37 = x + 23 \\
-23 \quad -23
\]

\[
14 = x
\]

\[
2(14) + 37 = 65
\]
6. Given: \( \triangle XYZ \cong \triangle NPQ \). Identify the congruent corresponding parts.

1. \( \angle Z \cong \angle Q \)
2. \( \overline{YZ} \cong \overline{PQ} \)
3. \( \angle P \cong \angle Y \)
4. \( \angle X \cong \angle N \)
5. \( \overline{NQ} \cong \overline{XZ} \)
6. \( \overline{PN} \cong \overline{YX} \)

7. Given: \( \triangle EFG \cong \triangle RST \). Find each value below.

\[
\begin{align*}
4x + 6 &= 90 \\
4x &= 84 \\
x &= 21
\end{align*}
\]

8. \( \triangle CDE \cong \triangle HIJ \), \( m\angle D = (5y + 1) \degree \), and \( m\angle I = (6y - 25) \degree \).

Find \( y \) and \( m\angle D \).

\[
\begin{align*}
5(y + 1) &= 6y - 25 \\
5y + 5 &= 6y - 25 \\
10 &= y - 25 \\
25 &= y \\
\end{align*}
\]

9. Given: \( \triangle CDE \cong \triangle HIJ \), \( DE = 9x \), and \( IJ = 7x + 3 \). Find \( x \) and \( DE \).

\[
\begin{align*}
x &= 3 \\
\frac{9x}{2} &= \frac{27}{2} = DE
\end{align*}
\]
11. Complete the proof.

**Given:** \( \angle Q \cong \angle R \)

- \( P \) is the midpoint of \( QR \).
- \( NQ \cong SR, NP \cong SP \)

**Prove:** \( \triangle NPQ \cong \triangle SPR \)

**Proof:**

<table>
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<tr>
<th>Statements</th>
<th>Reasons</th>
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<tbody>
<tr>
<td>1. ( \angle Q \cong \angle R )</td>
<td>1. Given</td>
</tr>
<tr>
<td>2. ( \angle NPQ \cong \angle SPR )</td>
<td>2. a. <strong>Vert. ( \angle )'s</strong></td>
</tr>
<tr>
<td>3. ( \angle N \cong \angle S )</td>
<td>3. b. <strong>Third ( \angle ) Thm</strong></td>
</tr>
<tr>
<td>4. ( P ) is the midpoint of ( QR ).</td>
<td>4. c. <strong>Given</strong></td>
</tr>
<tr>
<td>5. d. ( OP \cong OP )</td>
<td>5. Def. of mdpt.</td>
</tr>
<tr>
<td>6. ( NQ \cong SR, NP \cong SP )</td>
<td>6. e. <strong>Given</strong></td>
</tr>
<tr>
<td>7. ( \triangle NPQ \cong \triangle SPR )</td>
<td>7. f. <strong>can use any of the 5 postulates except HL</strong></td>
</tr>
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6. Complete the proof.

**Given:** \( T \) is the midpoint of \( VS \).

- \( \overline{RT} \perp \overline{VS} \)

**Prove:** \( \triangle RST \cong \triangle RVT \)

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<td>1. Given</td>
</tr>
<tr>
<td>2. a. ( VT \cong ST )</td>
<td>2. Def. of mdpt.</td>
</tr>
<tr>
<td>3. ( \overline{RT} \perp \overline{VS} )</td>
<td>3. b. <strong>Given</strong></td>
</tr>
<tr>
<td>4. ( \angle RTS ) and ( \angle RTV ) are right ( \angle )'s</td>
<td>4. c. def of ( \perp ) lines</td>
</tr>
<tr>
<td>5. d. ( \angle RTS \cong \angle RTV )</td>
<td>5. Rt. ( \angle \cong ) Thm.</td>
</tr>
<tr>
<td>6. ( \overline{RT} \cong \overline{RT} )</td>
<td>6. e. <strong>Reflexive Prop.</strong></td>
</tr>
<tr>
<td>7. ( \triangle RST \cong \triangle RVT )</td>
<td>7. f. <strong>SAS</strong></td>
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</table>
2. Given: $\triangle UXW$ and $\triangle UVW$ are right $\triangle$s. 
$\overline{UX} \cong \overline{UV}$
Prove: $\angle X \cong \angle V$

Proof:

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<td>1. $\triangle UXW$ and $\triangle UVW$ are rt. $\triangle$s.</td>
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<td>2. $\overline{UX} \cong \overline{UV}$</td>
<td>2. a. Given</td>
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<tr>
<td>3. $\overline{UW} \cong \overline{UW}$</td>
<td>3. b. Reflexive Prop.</td>
</tr>
<tr>
<td>4. c. $\triangle UXW \cong \triangle UVW$</td>
<td>4. d. HL</td>
</tr>
<tr>
<td>5. $\angle X \cong \angle V$</td>
<td>5. e. CPCTC</td>
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**Dilations and Midsegment Review:**

13. Plot the following points $A(-2, 4)$, $B(1, -3)$, and $C(-5, -1)$.

Draw the image after it has been dilated by a scale factor of $k=2$

$A' = \left( -\frac{4}{2}, \frac{8}{2} \right)$
$B' = \left( 2, \frac{-6}{2} \right)$
$C' = \left( -10, \frac{-2}{2} \right)$

14. Given $AC = 42$, $CB = 46$, $AB = 48$. $D, E, F$ are midpoints.
Find the perimeter of triangle $DEF$.

These sides are half of the others because of mid-segment theorem.
Similar Triangles Review:

Tell if the figures are similar. If they are, write a similarity postulate and statement using the symbol for similar, ~, and give the scale factor from the smaller polygon to the larger one. If they are not similar, explain why.

15. Yes, AA, SSS, or SAS
   \( \triangle EFG \sim \triangle LKJ \)
   \[ \frac{30}{15} = 2 \quad \frac{16}{8} = 2 \quad \frac{34}{17} = 2 \]

16. Not Similar

17. Yes, SAS
   \( \triangle ABCD \sim \triangle WXYZ \)
18. Suppose \( \triangle CAN \sim \triangle JOY \). If \( m \angle A = 96^\circ \), \( m \angle N = 46^\circ \) and \( m \angle C = 38^\circ \), then

\[
m \angle Y = \frac{46^\circ}{10}, \quad m \angle J = \frac{38^\circ}{10} \quad \text{and} \quad m \angle O = \frac{96^\circ}{10}.
\]

Find the missing side lengths in each pair of similar figures.

19. \( \triangle ABC \sim \triangle XYZ \)

\[
\frac{X}{6} \times \frac{25}{10} = \frac{10x}{10} \times \frac{150}{10} \Rightarrow X = 15
\]

20. \( \triangle ABC \sim \triangle XYZ \)

\[
\frac{40x}{40} \times \frac{50}{50} = \frac{1000}{40} \times \frac{40}{40} \Rightarrow X = 25
\]

21. \( \triangle ABC \sim \triangle XYZ \)

\[
\frac{16}{8} \times \frac{34}{8} = \frac{16x}{16} \times \frac{30}{16} \Rightarrow x = 17
\]

22. \( \triangle ABC \sim \triangle XYZ \)

\[
\frac{14.4}{12} \times \frac{X}{13} = \frac{12x}{12} \times \frac{187.2}{12} \Rightarrow X = 15.6
\]

23. \( \triangle JKL \sim \triangle GKH \)

\[
\frac{6}{10} \times \frac{x}{15} = \frac{10x}{10} \times \frac{90}{10} \Rightarrow x = 9
\]

24. \( \triangle ABC \sim \triangle ADE \)

\[
\frac{5}{12.5} \times \frac{4}{10} = \frac{12.5x}{12.5} \times \frac{3}{12.5} \Rightarrow \frac{5x}{5} = \frac{5y}{5} \Rightarrow x = y = 7.5
\]