M1T3 Test Review: Angles and Triangles

1a: Use the provided figure to answer the following questions.

∠3 and ∠1 are supplementary angles or ∠4
∠7 and ∠6 are vertical angles
∠3 and ∠7 are corresponding angles
∠5 and ∠4 are alternate interior angles
∠1 and ∠8 are alternate exterior angles
∠4 and ∠6 are same side interior angles

1b. Use the provided figure to answer the following questions

∠2 and ∠6 are alternate interior angles.
∠8 and ∠6 are corresponding angles.
∠5 and ∠1 are alternate exterior angles.
∠6 and ∠4 are vertical angles.
∠2 and ∠7 are supplementary angles. (Linear pair)
∠6 and ∠7 are same side interior angles.

2. If m∠4 = 122°, find the measure of angle 2. State the reason of how you knew this angle. (use appropriate vocabulary terms.)

∠2 and ∠4 are supplementary angles.

m∠4 = 122° because it is vertical to ∠1 and vertical ∠s are congruent.

3. a. Fill in each of the missing angles on the provided figure given that ∠1 = 130°.

b. How did you know the measure of ∠4? (what angle…use appropriate vocabulary)

m∠4 = 130° because it is vertical to ∠1 and vertical ∠s are congruent.

c. What is the relationship between ∠1 and ∠2?

∠1 and ∠2 are supplementary angles whose measures add up to 180°.
4. Use the diagram below: Find the missing angles.

\[
\begin{align*}
\text{x} & = 70 \\
\text{y} & = 45 \\
\text{z} & = 75
\end{align*}
\]

Equation: \(65 + 45 + x = 180\)
\(65 + 45 + z = 180\)
\(x + 110 = 180\)
\(z + 105 = 180\)
\(x = 70\)

5.

Equation: \(6x + 2 + 10 + 15x = 180\)
\(6x + 2 + 1 + 15x = 170\)
\(21x + 3 = 170\)
\(2x = 167\)
\(x = 83\)

\(a. \ x = 8 \quad b. \ \text{Missing angles} = 50 \quad \text{and} \quad 130\)

6.

\[
\begin{align*}
\text{x} & = 63 \\
\text{Equation:} \ x + 55 + 62 = 180
\end{align*}
\]

\(a. \ x = 63 \quad \text{Equation:} \ x + 55 + 62 = 180\)

7.

\[
\begin{align*}
\text{Equation:} \ 3x + 6 + 8x - 4 + 3x + 6 = 180
\end{align*}
\]

\(3(11) + 6 = 39\)
\(5(11) + 2 = 57\)
\(8(11) - 4 = 84\)

\(a. \text{Missing angles} = 39, 57, \quad \text{and} \quad 84\)

8.

\[
\begin{align*}
\text{x} & = 25 \\
\text{Equation:} \ 4x + 7 + x + 9 + 39 = 180
\end{align*}
\]

\(4(25) + 7 = 107\)
\(25 + 9 = 34\)

\(a. \ x = 25 \quad b. \ \text{Missing angles} = 39, 107, \quad \text{and} \quad 34\)

9.

\[
\begin{align*}
\text{x} & = 60
\end{align*}
\]

Equation: \(32 + 28 = y\)

10.

\[
\begin{align*}
\text{x} & = 83
\end{align*}
\]

Equation: \(x + 34 = 117\)
\(x = 83\)
11. \( x^\circ \) 
\[ 6x + 4^\circ \] 
\[ 123^\circ \]

Equation: \( x + 6x + 4 = 123 \)
\[ 7x + 4 = 123 \]
\[ 7x = 119 \]
\[ x = 17 \]

a. \( x = 17 \)  

b. Missing angles = 17 and 106

12. Do the following angles give you a congruent measure or do they add up to 180°?

- Alternate Interior: congruent
- Supplementary: add up to 180°
- Corresponding: congruent
- Vertical: congruent
- Same Side Interior: add up to 180°
- Alternate Exterior: congruent

13. 
\[ \triangle \text{Sum Th} \quad \text{Supp â€¢} \quad \text{Ext â€¢ L Th} \quad \Delta \text{Sum Th} \]
\[ x + 43 + 105 = 180 \]
\[ x + 43 + 105 = 180 \]
\[ x = 32 \]
\[ 105 + 32 = x \]
\[ x = 137 \]

14. 
\[ m\angle 1 = 27^\circ \]
\[ m\angle 2 = 63^\circ \]

Vertical \( \angle \)s
\[ 90 - 27 = 63^\circ \]
15. \[ m\angle a = m\angle b = m\angle c = 40^\circ \]

16. \[ a + 39 + 76 = 180 \]
\[ a + 151 = 180 \]
\[ a = 29^\circ \]
\[ m\angle a = 29^\circ \]
\[ m\angle b = 76^\circ \]
\[ m\angle c = 65^\circ \]

17. Find each of the missing angles given that \[ m\angle 5 = 34^\circ \quad m\angle 8 = 109^\circ \]

18. a. Write the side lengths in order from shortest to longest.

19. Check the box that applies to each angle relationship when parallel lines are cut by a transversal.

<table>
<thead>
<tr>
<th>Alternate Interior</th>
<th>Same-Side Exterior</th>
<th>Corresponding</th>
<th>Same-Side Interior</th>
<th>Linear Pair</th>
<th>Vertical</th>
<th>Alternate Exterior</th>
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