Identify all the numbered angles that are congruent to the given angle. Justify your answers.

1. \[ \angle 1 \cong 132^\circ \]

2. \[ \angle 5 \cong 78^\circ \]

3. \[ \angle 1 \cong \angle 2 \]

4. \[ \angle 1 \cong \angle 6 \]

Find \( m\angle 1 \) and \( m\angle 2 \). Justify each answer.

5. \[ \angle 1 \cong 130^\circ \]

6. \[ \angle 2 \cong 79^\circ \]

7. \[ \angle Q \cong 76^\circ, \angle R \cong 119^\circ \]

8. \[ \angle b \cong 58^\circ \]
Algebra  Find the value of $x$ and $y$. Then find the measure of each labeled angle.

9. \[ x^\circ \]
   \[ (x - 26)^\circ \]

10. \[ \frac{x}{2}^\circ \]
    \[ (7x)^\circ \]

Algebra  Find the value of $x$ and $y$. Then find the measure of each labeled angle.

11. \[ (x + 55)^\circ \]
    \[ (3x - 5)^\circ \]

12. \[ (x + 20)^\circ \]
    \[ (x + 10)^\circ \]
    \[ (y - 40)^\circ \]
13. Write a two-column proof.
   **Given:** \( a \parallel b, x \parallel y \)
   **Prove:** \( \angle 4 \) is supplementary to \( \angle 15 \).

   **Statements** | **Reasons**
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   1. \( a \parallel b, x \parallel y \) | 1. **Given**
   2. \( \angle 4 \cong \angle 8 \)  
      \( \angle 7 \cong \angle 15 \) | 2. **Corresponding \( \angle \)s Thm.
   3. \( m\angle 4 = m\angle 8 \)  
      \( m\angle 7 = m\angle 15 \) | 3. **Def. of \( \cong \) \( \angle \)s
   4. \( m\angle 7 + m\angle 8 = 180 \) | 4. **Supplements Thm.
   5. \( m\angle 15 + m\angle 4 = 180 \) | 5. **Substitution**
   6. \( \angle 4 \) supplementary to \( \angle 15 \) | 6. **Def. of Supplementary**

15. **Error Analysis** Which solution for the figure at the right is incorrect? Explain.
   \[
   \begin{align*}
   2x - 40 &= x + 10 \\
   x - 40 &= 10 \\
   x &= 50
   \end{align*}
   \]
   \[
   \begin{align*}
   2x - 40 + (x + 10) &= 180 \\
   3x - 30 &= 180 \\
   3x &= 210 \\
   x &= 70
   \end{align*}
   \]
16. A zip line consists of a pulley attached to a cable that is strung at an angle between two objects. In the zip line at the right, one end of the cable is attached to a tree. The other end is attached to a post parallel to the tree. What is the measure of \( \angle 1 \)? What type of angle pair do \( \angle 1 \) and the given angle represent?