Name

Class

Date

3.2 Properties of Parallel Lines

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

 **1. 2.**

**3. 4.**

**Find *m***∠**1 and *m***∠**2. Justify each answer.**

 **5. 6.**

**7. 8.**

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

**9.** **10.**

 **11. 12.**

**13.** Write a two-column proof.

**Given:** *a* ║ *b*, *x* ║ *y*



**Statements**

**Reasons**

**Prove:** ∠4 is supplementary to ∠15.

**14. Error Analysis** Which solution for the figure at the right is incorrect? Explain.

2*x* − 40 = *x* + 10 2*x* − 40 + (*x* + 10) = 180

*x* − 40 = 10 3*x* − 30 = 180

*x* = 50 3*x* = 210

*x* = 70

**15.** 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 ∠1? What type of angle pair do ∠1 and the given angle represent?