Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

1. **2.** 

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

 **3. 4.**  

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

**5.** **6.** 

 **7. 8.** 

**9.** Complete the two-column proof for the Alternate Exterior Angle Theorem.

 **Given***: a* || *b*

 **Prove:** ∠1 ≅ ∠ 7

 **Statements Reasons**

 1) 1)

 2) 2) Corresponding ∠s Postulate

 3) 3) Vertical ∠s Theorem

 4) 4)

**10.** **Error Analysis.** Which solution for the figure at 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

**11.** 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?

**Which lines or segments are parallel? Justify your answer.**

**12. 13. 14.**

**15. Complete the flow proof. (Converse of the Same-Side Exterior Angle Theorem)**

** Given:** ∠1 and ∠4 are supplementary

 **Prove: **

****

**Algebra Determine the value of *x* for which *r*** ║ ***s.* Then find the measure of each labeled angle.**

**16. 17. 18.**

**Use the given information to determine which lines, if any, are parallel. Justify each conclusion with a theorem or postulate.**

**19.** ∠∠11 is supplementary to ∠∠10. **20.** ∠∠6 ≅ ∠∠9

**21.** ∠∠13 is supplementary to ∠∠14. **22.** ∠∠13 ≅ ∠∠15

**In Exercises 23 and 24, *a, b,* and *c* are distinct lines in the same plane. For each combination of relationships, tell how *a* and *c* relate. Justify your answer.**

**23.** *a* ⊥ *b; b* ⊥ *c* **24.** *a* ⊥ *b; b* || *c*