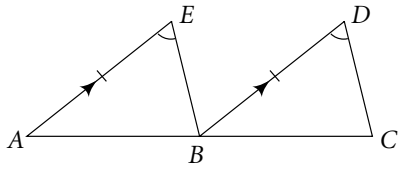
Name _____ Class _____ Date _____

4-3 • Guided Problem Solving

GPS Student Page 217, Exercise 22

Given: $\overline{AE} \| \overline{BD}, \overline{AE} \cong \overline{BD}, \angle E \cong \angle D$

Prove: $\triangle AEB \cong \triangle BDC$



Read and Understand

1. What types of congruent angles are formed when parallel lines are cut by a transversal? _____

2. In order for $\triangle AEB \cong \triangle BDC$ by ASA, what pair of angles would need to be congruent? _____

3. In order for $\triangle AEB \cong \triangle BDC$ by AAS, what pair of angles would need to be congruent? _____

Plan and Solve

4. Name a pair of corresponding angles that are formed by $\overline{AC}$ intersecting $\overline{AE}$ and $\overline{BD}$. _____

5. What parts of $\triangle AEB$ and $\triangle BDC$ are now known to be congruent? _____

6. Why can you conclude that $\triangle AEB \cong \triangle BDC$?

_____

Look Back and Check

7. Can $\triangle AEB$ and $\triangle BDC$ be shown to be congruent using a method different than the one you used? _____

   What postulate or theorem would you use? _____

   What additional information would you need? _____

Solve Another Problem

8. Suppose that instead of $\overline{AE}$ and $\overline{BD}$ being given as parallel and congruent, it is simply given that $\overline{AB} \cong \overline{BC}$ (with *A, B,* and *C* collinear). Can you conclude that $\triangle AEB \cong \triangle BDC$? Why or why not?

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