

Handout 3: The Grass is Always Greener On The Adjacent Side - Answers

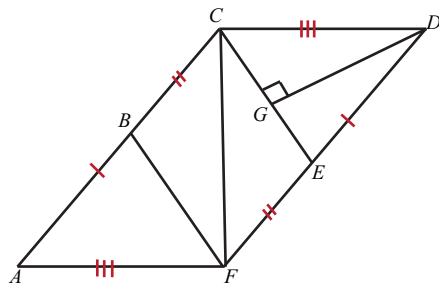


Figure 1

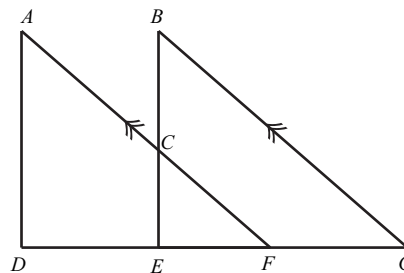


Figure 2

Use Figure 1 for questions 1-3.

1. Which rule of congruency can be used to prove that $\triangle ACF \cong \triangle DFC$, and why?

Side Side Side Postulate, because $\overline{AF} \cong \overline{DC}$ (given), $\overline{AC} \cong \overline{DF}$, and $\overline{CF} \cong \overline{CF}$.

2. Given \overline{DG} bisects $\angle CDE$. Which rule of congruency can be used to prove that $\triangle CDG \cong \triangle EDG$, and why?

Angle Side Angle Postulate, because $\angle CDG \cong \angle EDG$, $\overline{DG} \cong \overline{DG}$ (reflexive property), and $\angle CGD \cong \angle EGD$.

3. Given $\overline{BC} \parallel \overline{EF}$ and $\overline{CE} \parallel \overline{FB}$. Which rule of congruency can be used to prove that $\triangle CEF \cong \triangle FBC$, and why?

Side Angle Side Postulate, because $\overline{CF} \cong \overline{CF}$, $\angle CFE \cong \angle FCB$ and $\overline{BC} \cong \overline{EF}$.

Use Figure 2 for questions 4-10.

4. What allows us to say that $\angle ADF \cong \angle BEG$?

Right Angle Theorem

5. What allows us to say that $\overline{EF} \cong \overline{EF}$?

Reflexive Property of Congruence

6. What allows us to say that $\overline{DE} + \overline{EF} \cong \overline{FG} + \overline{EF}$?

Addition Property of Congruence

7. What allows us to say that $\overline{DE} + \overline{EF} \cong \overline{DF}$ and $\overline{FG} + \overline{EF} \cong \overline{EG}$?

Segment Addition Postulate

8. What allows us to say that $\overline{DF} \cong \overline{EG}$?

Substitution Property of Congruence

9. What allows us to say that $\angle AFD \cong \angle BGE$?

Corresponding Angles Theorem

10. What proves that $\triangle ADF$ and $\triangle BEG$ are congruent?

ASA