

Similarity Worksheet 3 - Answers

- Given points $A(2, 5)$, $B(2, 0)$, $C(14, 0)$, $D(4, 3)$, $E(9, 3)$, and $F(9, 15)$. Show that $\triangle ABC \cong \triangle DEF$.
 $AB = DE = 5$, $BC = EF = 12$,
 $AC = DF = 13$, by SSS postulate
 $\triangle ABC \cong \triangle DEF$.

Given $EFGH$ is a square with a diagonal drawn from $\angle E$ to $\angle G$. Complete the proof that $\triangle EFG \cong \triangle GHE$ in questions 2 - 4.

- Is $\overline{EF} \cong \overline{GH}$ and $\overline{FG} \cong \overline{HE}$ true? Why?
 Yes by definition of a square.
- Is $\overline{EG} \cong \overline{EG}$ true? Why?
 By reflexivity property.
- Is $\triangle EFG \cong \triangle GHE$? Why?
 Yes, using SSS postulate.

Use the following information for questions 5 - 7 to prove that $\triangle QRT \cong \triangle SRT$: In $\triangle QRS$, $\angle Q \cong \angle S$ and \overline{RT} bisects \overline{QS} .

- Is $\overline{QR} \cong \overline{RS}$? Why?
 Yes, by Law of Sines.
- What can you conclude using the definition of segment bisector?
 $\overline{QT} \cong \overline{TS}$
- Prove that $\triangle QRT \cong \triangle SRT$.
 Since $\overline{RT} \cong \overline{RT}$, using SSS postulate
 $\triangle QRT \cong \triangle SRT$.

Use the following information for questions 8 - 10 to prove that $\triangle W XO \cong \triangle Y ZO$: Given \overline{WY} bisects \overline{XZ} , \overline{WY} and \overline{XZ} intersect at O , and $\overline{XW} \parallel \overline{YZ}$.

- What can you conclude using the definition of segment bisector?
 $\overline{XO} \cong \overline{ZO}$
- Why is $\angle XOW \cong \angle ZOY$?
 By Vertical Angles theorem
- Prove $\triangle W XO \cong \triangle Y ZO$.
 By Alternate Interior Angles theorem
 $\angle X \cong \angle Z$ and ASA postulate proves the congruence.