

Explorations

These exploratory exercises can be done using a computer with a program that draws and measures geometric figures.

1. Draw any triangle ABC . Choose a point D on \overline{AB} . Draw a line through D parallel to \overline{BC} and intersecting \overline{AC} at point E .

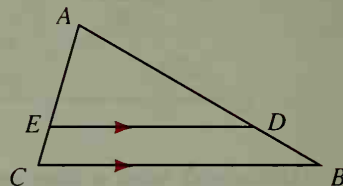
What do you know about $\triangle ABC$ and $\triangle ADE$?

What do you know about $\frac{AE}{AC}$ and $\frac{AD}{AB}$?

Calculate $\frac{AE}{EC}$ and $\frac{AD}{DB}$. What do you notice?

Calculate $\frac{EC}{AC}$ and $\frac{DB}{AB}$. What do you notice?

Repeat on other triangles. What do you notice?

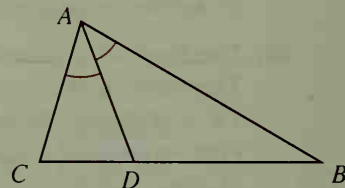


2. Draw any triangle ABC . Draw the bisector of $\angle A$ intersecting \overline{CB} at point D .

Measure and record the four lengths: AB , AC , BD , DC .

Calculate $\frac{BD}{DC}$ and $\frac{AB}{AC}$. What do you notice?

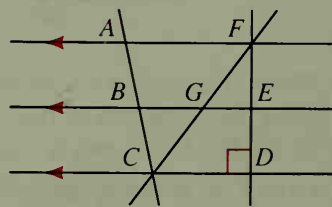
Repeat on other triangles. What do you notice?



Mixed Review Exercises

Complete.

1. Given: $\overline{AF} \parallel \overline{BE} \parallel \overline{CD}$; $\overline{AB} \cong \overline{BC}$
 - a. $\overline{GF} \cong \underline{\hspace{1cm}}$ and $\overline{ED} \cong \underline{\hspace{1cm}}$
 - b. If $AB = 9$, then $AC = \underline{\hspace{1cm}}$.
 - c. If $FG = 3x + 2$ and $GC = 7x - 10$, then $x = \underline{\hspace{1cm}}$.
 - d. $m\angle FEG = \underline{\hspace{1cm}}$



2. Given: W and U are the midpoints of \overline{RV} and \overline{VT} ; $\overline{SW} \parallel \overline{VT}$
 - a. S is the $\underline{\hspace{1cm}}$ of \overline{RT} and $\overline{SU} \parallel \underline{\hspace{1cm}}$.
 - b. If $TV = 12x + 4$ and $SW = 3x + 8$, then $x = \underline{\hspace{1cm}}$.
 - c. If $RW = 4y + 1$ and $SU = 9y - 19$, then $y = \underline{\hspace{1cm}}$.

