

LESSON

2.5

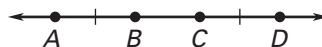
NAME _____ DATE _____

Technology Activity

For use with pages 102–107

GOAL Verifying a proof using geometry software

Geometry software can be used to verify a proof. For example, you could use geometry software to construct the diagram described in the proof below. Then, you could use the software's measuring tool to verify the statement about the segment length.

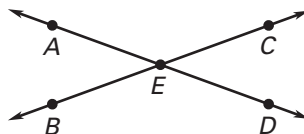
GIVEN $AB = CD$ **PROVE** $AC = BD$ **Activity**

- 1 Construct a diagram with points A , B , C , and D such that $AB = CD$ (see figure above).
- 2 Measure the lengths of \overline{AB} , \overline{CD} , \overline{AC} , and \overline{BD} and verify that $AC = BD$.

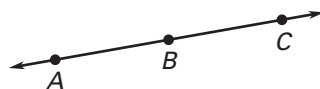
Exercises

Use geometry software to verify the following.

- 1.
- GIVEN**
- $\overline{AD} \cong \overline{BC}$
- ,
- $\overline{EC} \cong \overline{ED}$

PROVE $\overline{AE} \cong \overline{BE}$ 

- 2.
- GIVEN**
- $AB = BC$

PROVE $AC = 2 \cdot BC$ 

- 3.
- GIVEN**
- C
- is the midpoint of
- \overline{AB}

PROVE $AC = \frac{1}{2}AB$ and $CB = \frac{1}{2}AB$ 

Technology Activity Keystrokes

For use with pages 102–107

TI-92

1. Construct a line with points A , B , C , and D such that $AB = CD$

F8 9 (Set Coordinate Axes to RECTANGULAR and Grid to ON) **ENTER**

F2 5 (Move cursor to point $(-3, 0)$ and prompt says “POINT ON . . .”)

ENTER 2 (Move cursor to point $(-1, 0)$ and prompt says “POINT ON . . .”)

ENTER 2 (Move cursor to point $(1, 0)$ and prompt says “POINT ON . . .”)

ENTER 2 (Move cursor to point $(3, 0)$ and prompt says “POINT ON . . .”)

ENTER 2

Label the vertices

F7 4 (Move cursor to point $(-3, 0)$) **ENTER** A **ENTER** (Move cursor to point

$(-1, 0)$) **ENTER** B **ENTER** (Move cursor to point at $(1, 0)$) **ENTER** C **ENTER**

(Move cursor to point at $(3, 0)$) **ENTER** D **ENTER**

Turn off the axes and the grid

F8 9 (Set Coordinate Axes and Grid to OFF) **ENTER**

2. Measure the lengths of \overline{AB} , \overline{CD} , \overline{AC} and \overline{BD} and verify that $AC = BD$

F6 1 (Move cursor to A) **ENTER** (Move cursor to B) **ENTER**

(Move cursor to C) **ENTER** (Move cursor to D) **ENTER**

(Move cursor to A) **ENTER** (Move cursor to C) **ENTER**

(Move cursor to B) **ENTER** (Move cursor to D) **ENTER**

Technology Activity Keystrokes

For use with pages 102–107

SKETCHPAD

1. Turn on the axes and the grid. Choose **Snap To Grid** from the **Graph** menu.

Choose the segment straightedge tool. Draw a segment from $(-2.5, 0)$ to $(-0.5, 0)$. Draw a segment from $(-0.5, 0)$ to $(0.5, 0)$. Draw a segment from $(0.5, 0)$ to $(2.5, 0)$.

Label the points. Choose the text tool. Label point $(-2.5, 0)$ *A*, label point $(-0.5, 0)$ *B*, label point $(0.5, 0)$ *C*, and label point $(2.5, 0)$ *D*. Turn off the axes and the grid. Choose **Hide Axes** from the **Graph** menu. Choose **Hide Grid** from the **Graph** menu.

2. Measure the lengths of \overline{AB} , \overline{CD} , \overline{AC} , and \overline{BD} and verify that $AC = BD$. Choose the translate selection arrow tool and select \overline{AB} . Then hold down the shift key, select \overline{CD} , and choose **Length** from the **Measure** menu. To measure the length of \overline{AC} , select *A*, hold down the shift key and select *C*, and choose **Distance** from the **Measure** menu. To measure the length of \overline{BD} , select *B*, hold down the shift key and select *D*, and choose **Distance** from the **Measure** menu.