Investigating

Parallelograms

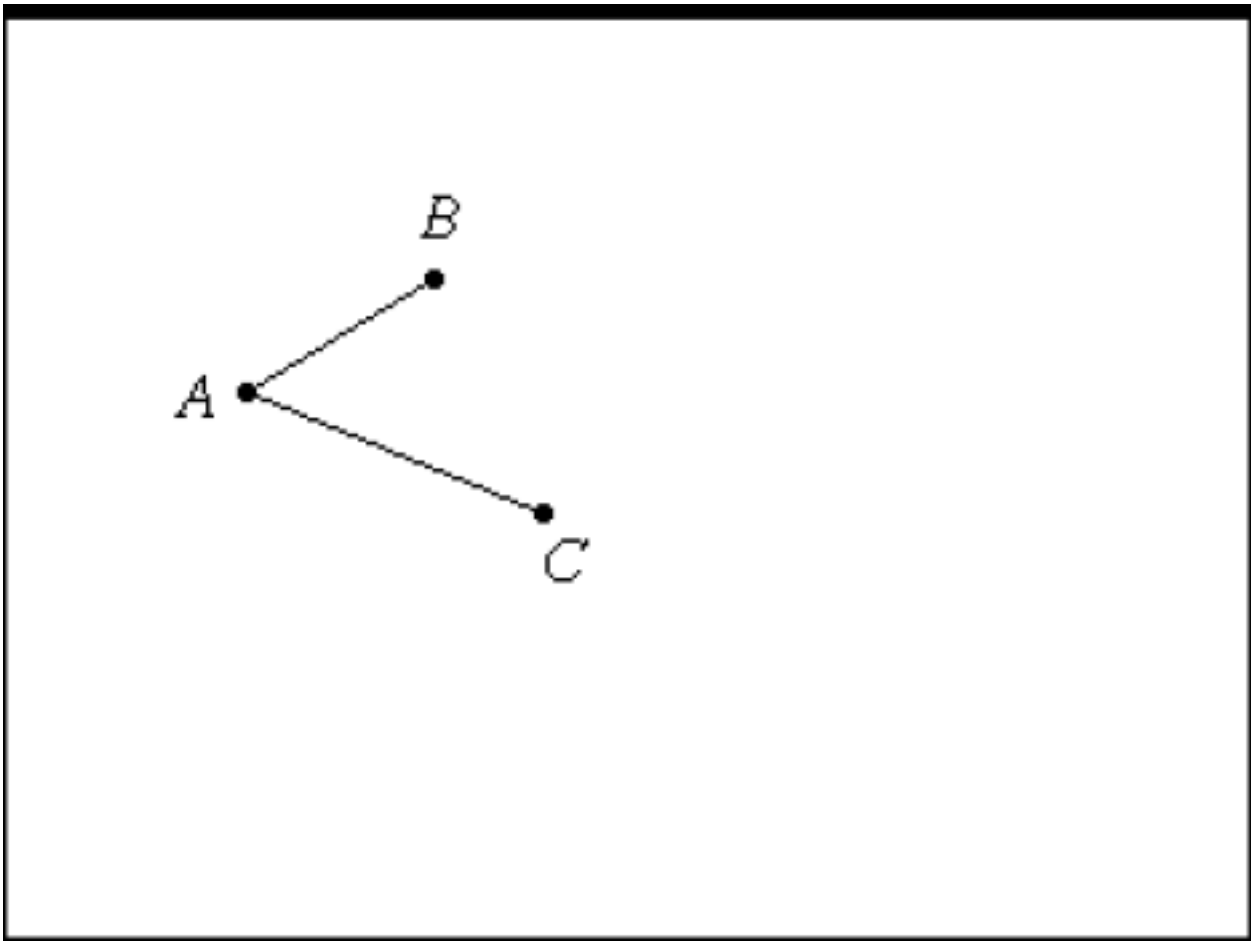
You can TI-Nspire Handheld to explore the properties of parallelograms.

A parallelogram is a quadrilateral with both pairs of opposite sides parallel.

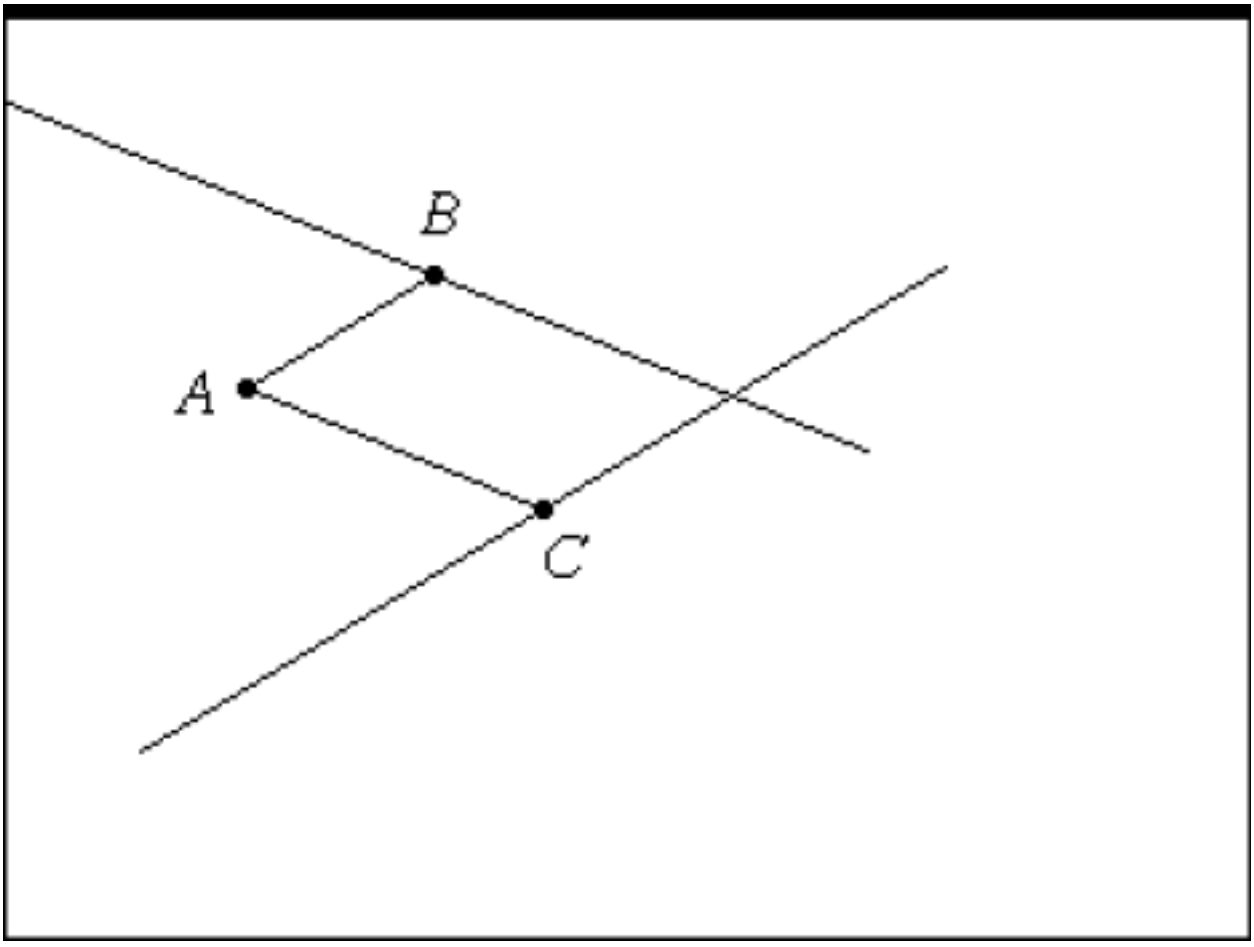
CONSTRUCT

Construct a parallelogram.

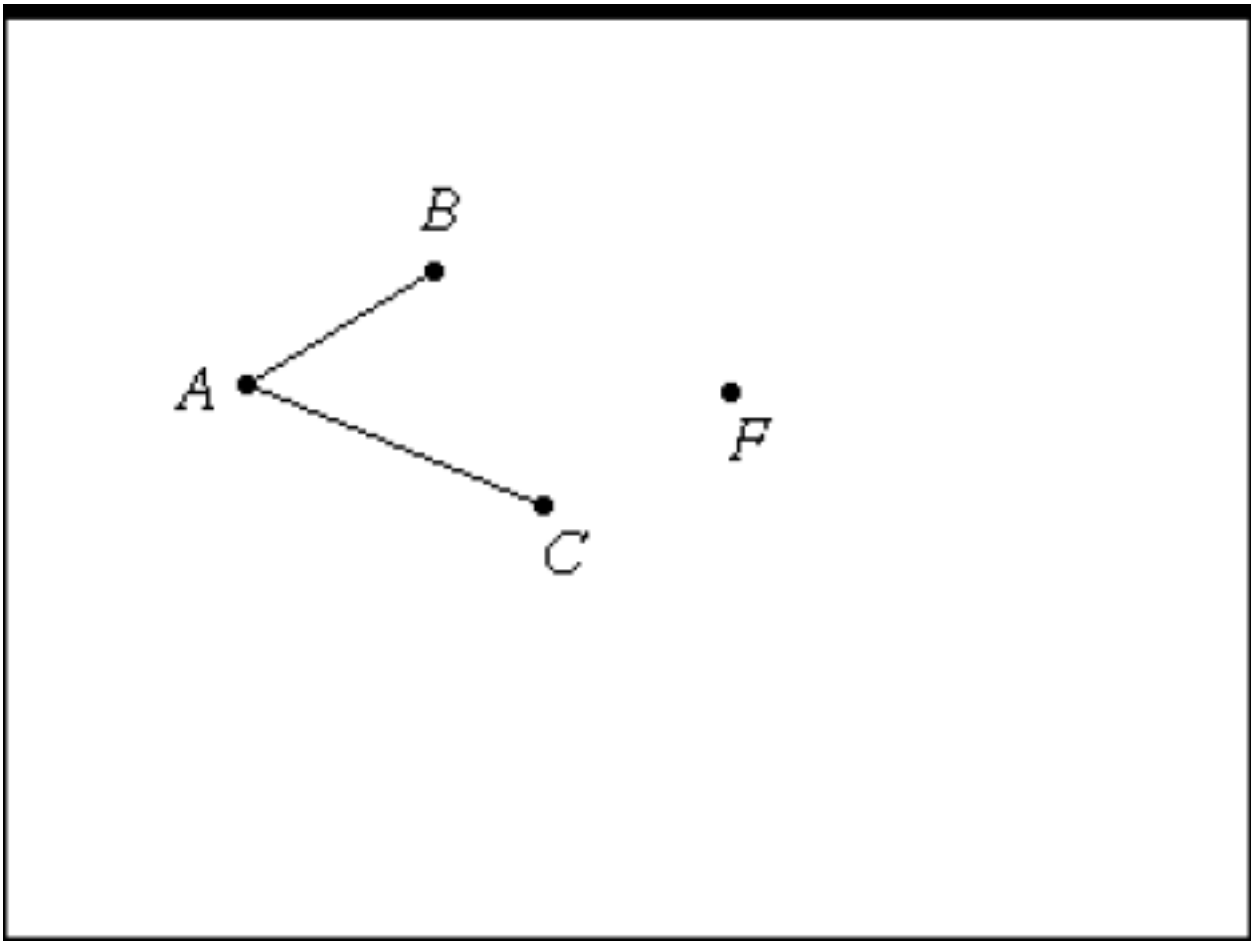
1. To construct a parallelogram, draw a segment and label it AB. From point A, draw another segment. Label it AC.


B
A
C

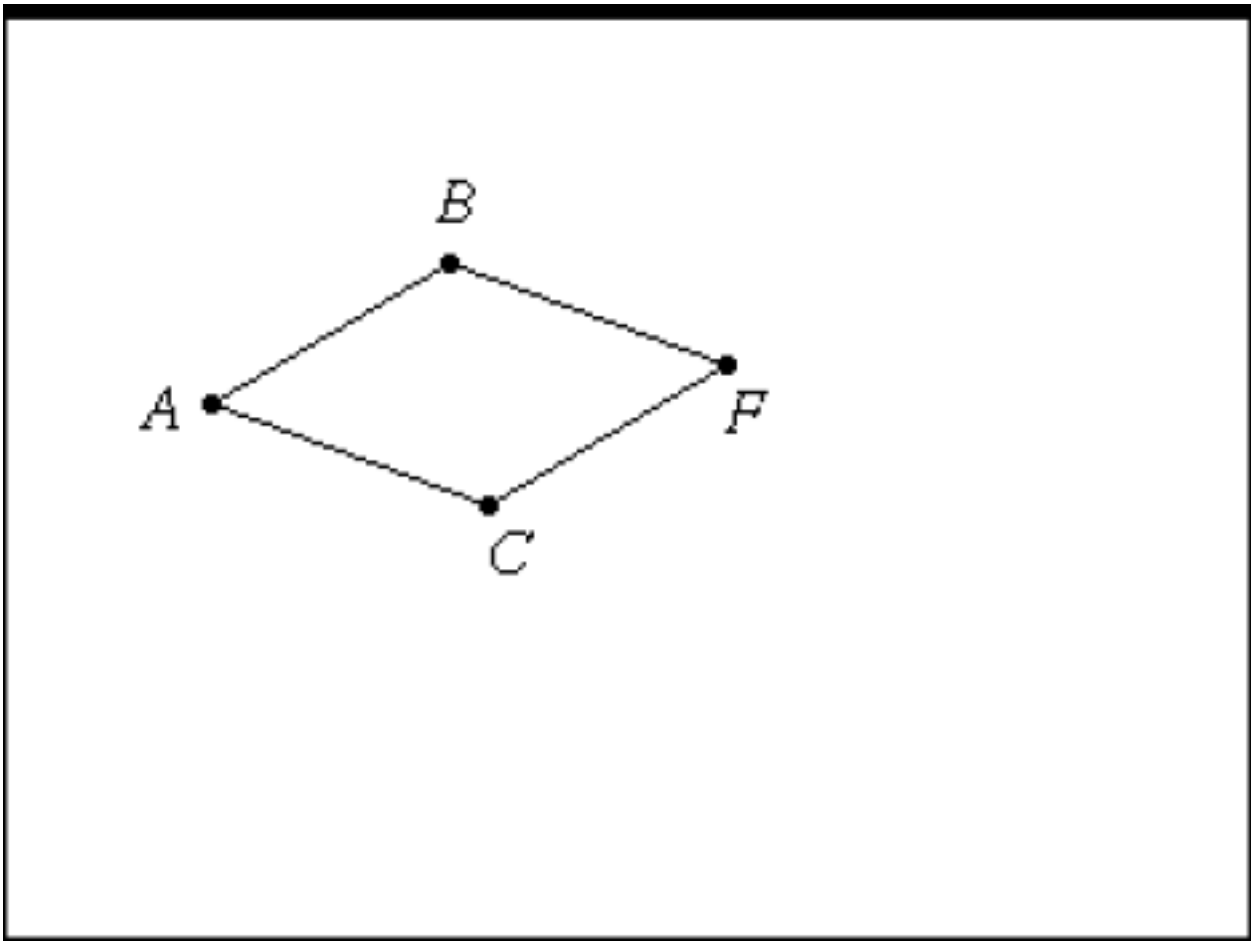
2. Construct a line through B parallel to segment AC.
3. Construct a line through C parallel to segment AB.


B
A
C

4. Mark the intersection of these two lines F and hide the lines.


B
A
F
C

5. Draw segments BF and CF to form parallelogram ABFC.


B
A
F
C

Question

INVESTIGATE

1. Drag points A, B, and C one at a time and notice how ABFC changes. Is

ABFC always a parallelogram? How do

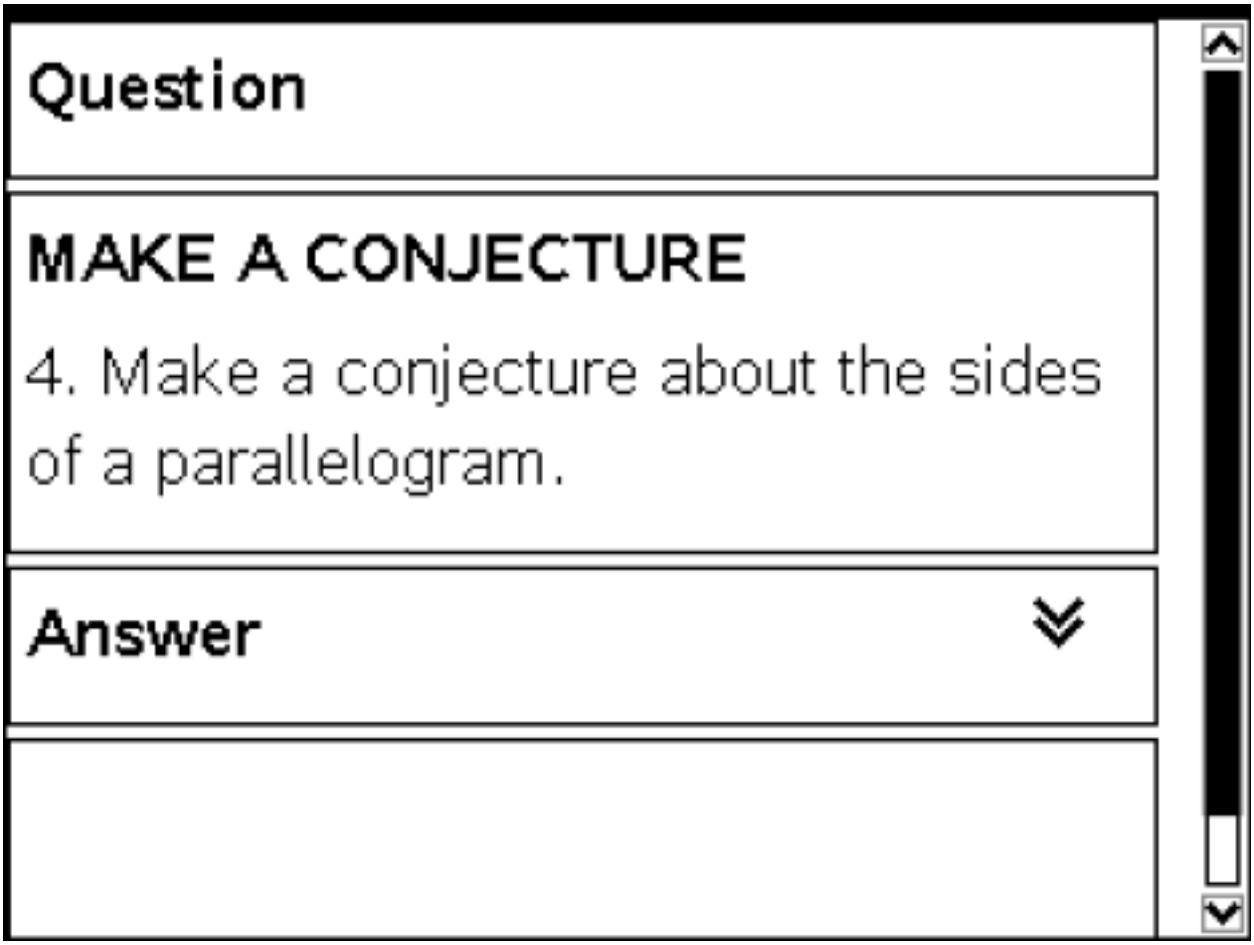
you know?

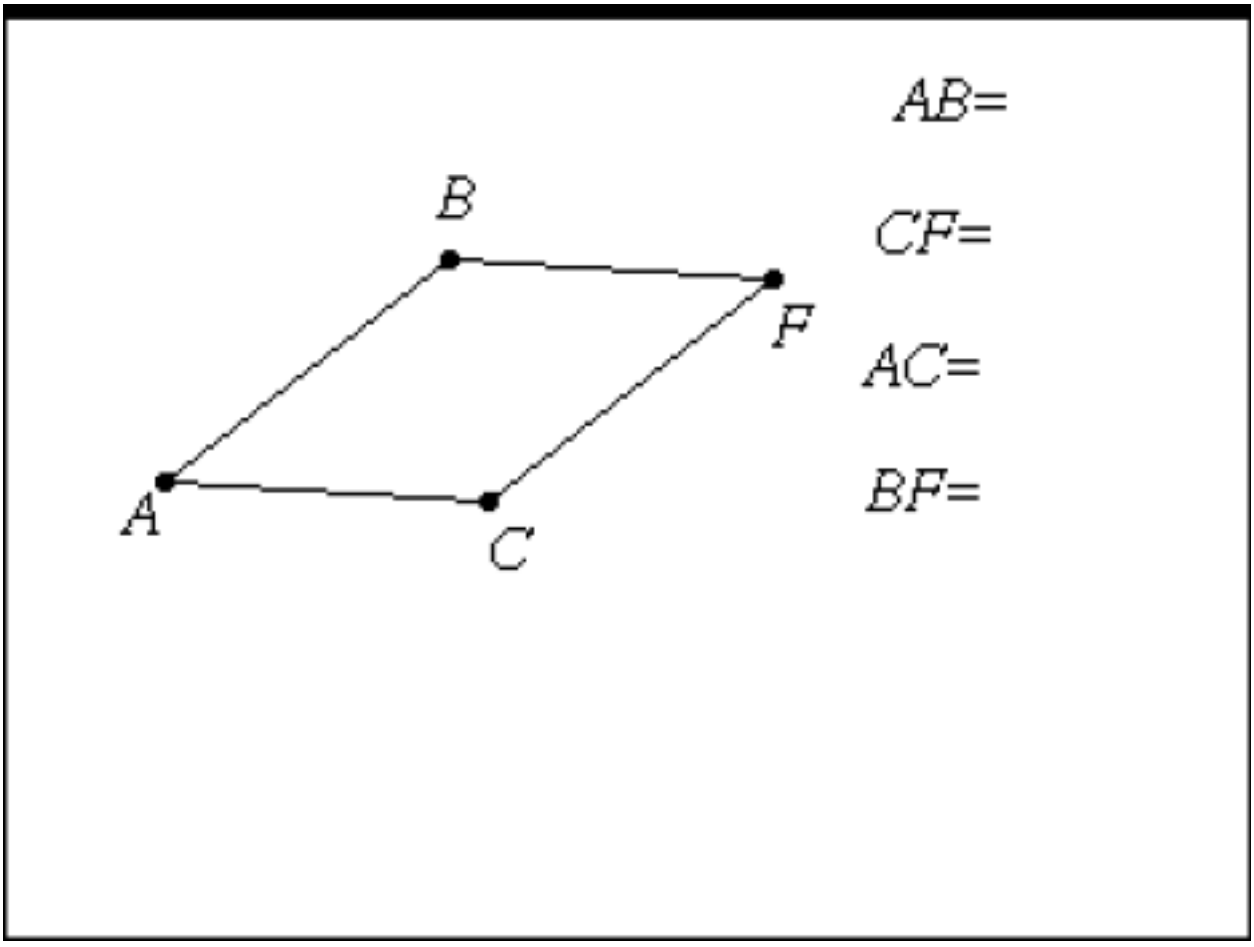
Question

2. Measure segements AB, BF, CF, and AC. What do you notice?

3. Drag points A, B, and C one at a time, continuing to compare the side lengths. What do you notice?

Answer


Question
MAKE A CONJECTURE
4. Make a conjecture about the sides of a parallelogram.
Answer


AB=
B
CF=
F
AC=
BF=
A
C

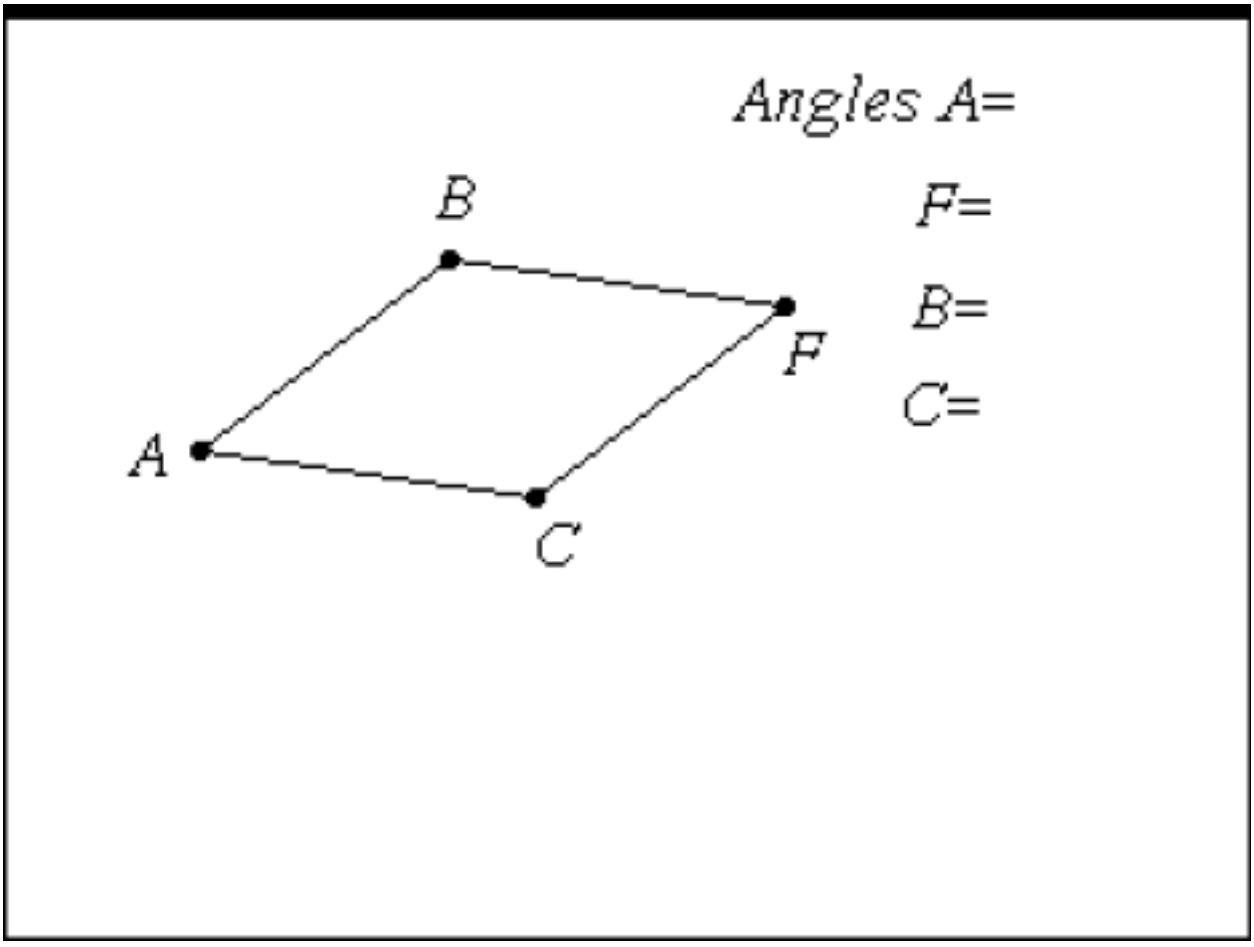
Question

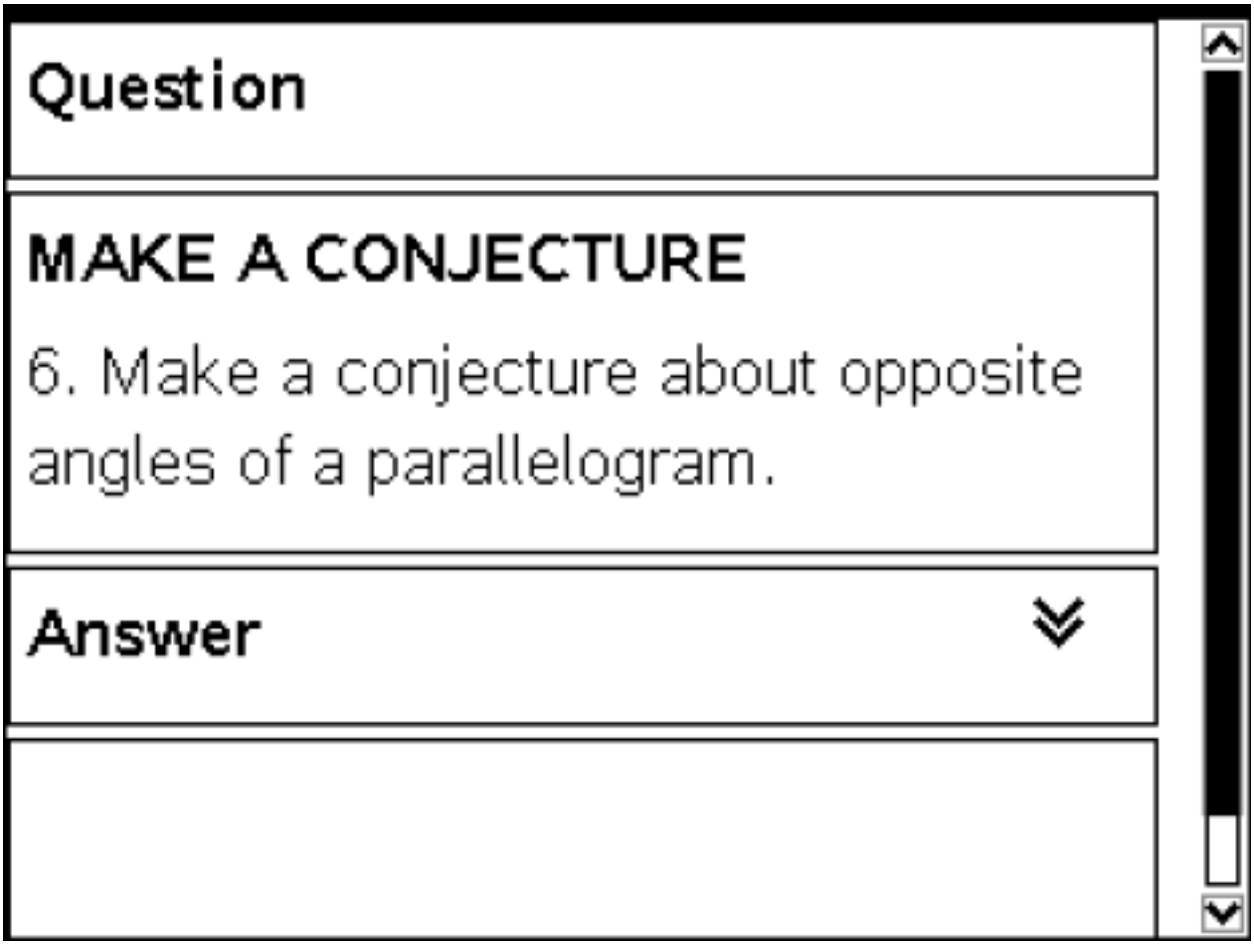
INVESTIGATE

5. Measure angles A, B, C, and F. Drag points A, B, and C one at a time while

comparing the angle measures. What do you notice?

Answer


Angles A=
F=
B=
C=
B
F
A
C


Question
MAKE A CONJECTURE
6. Make a conjecture about opposite angles of a parallelogram.
Answer

EXTENSION

CRITICAL THINKING

Draw the diagonals of parallelogram ABFC. Measure the distance from the intersection of the diagonals to each vertex of the parallelogram. Make and test a conjecture.