TANGRAM AREAS

Objective: Use tangrams to develop the concept of area, estimate area using tangram pieces, and determine the area of polygons with these pieces.

Materials: Tangram Areas Activity Sheets and Transparency
One set of tangrams per participant

Procedures:

1. Pass out the two "Tangram Areas" activity sheets and 1 set of tangrams to each participant.

2. Explain to the participants that the area of the small triangle in the set of tangrams is equal to 1 unit of area.

3. Allow participants to complete the first activity sheet together in their groups. Then discuss the correct results on the overhead using the transparency. Let different groups show and explain their results on the overhead transparency.

4. After completing the first activity then explain the second activity sheet to the participants. Remind the participants that they must first estimate the area before actually measuring it with the smallest tangram triangle.

5. When participants have finished the second activity, allow group members to demonstrate the correct answers on the overhead transparency using the tangram triangle.

6. Challenge participants to now create a puzzle with the area of 12-square units. Have participants draw their puzzle on the third handout.

Notes:

1. Procedure 6 can be omitted if time is running short, or participants can create puzzles with areas of 14 or 16 units for extending time.

2. The answers to the "Tangram Area" problems are:

Sheet 1
A. 2 units of area
B. 4 units of area
C. 7 units of area
D. 8 units of area
E. 10 units of area

Sheet 2
Estimated areas will vary
A. 9 units of area
B. 8 units of area
C. 8 units of area

Sheet 3
A. Answers will vary
B. 16 units of area

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Let the area of the small triangle be equal to 1 unit of area. If this is the area of the small triangle, what is the area of these tangram pieces?

A. The Square=____ Units of area   B. The Large Triangle=____ Units of area

Find the area of each shape shown below by covering them with tangram pieces.

C

D

E
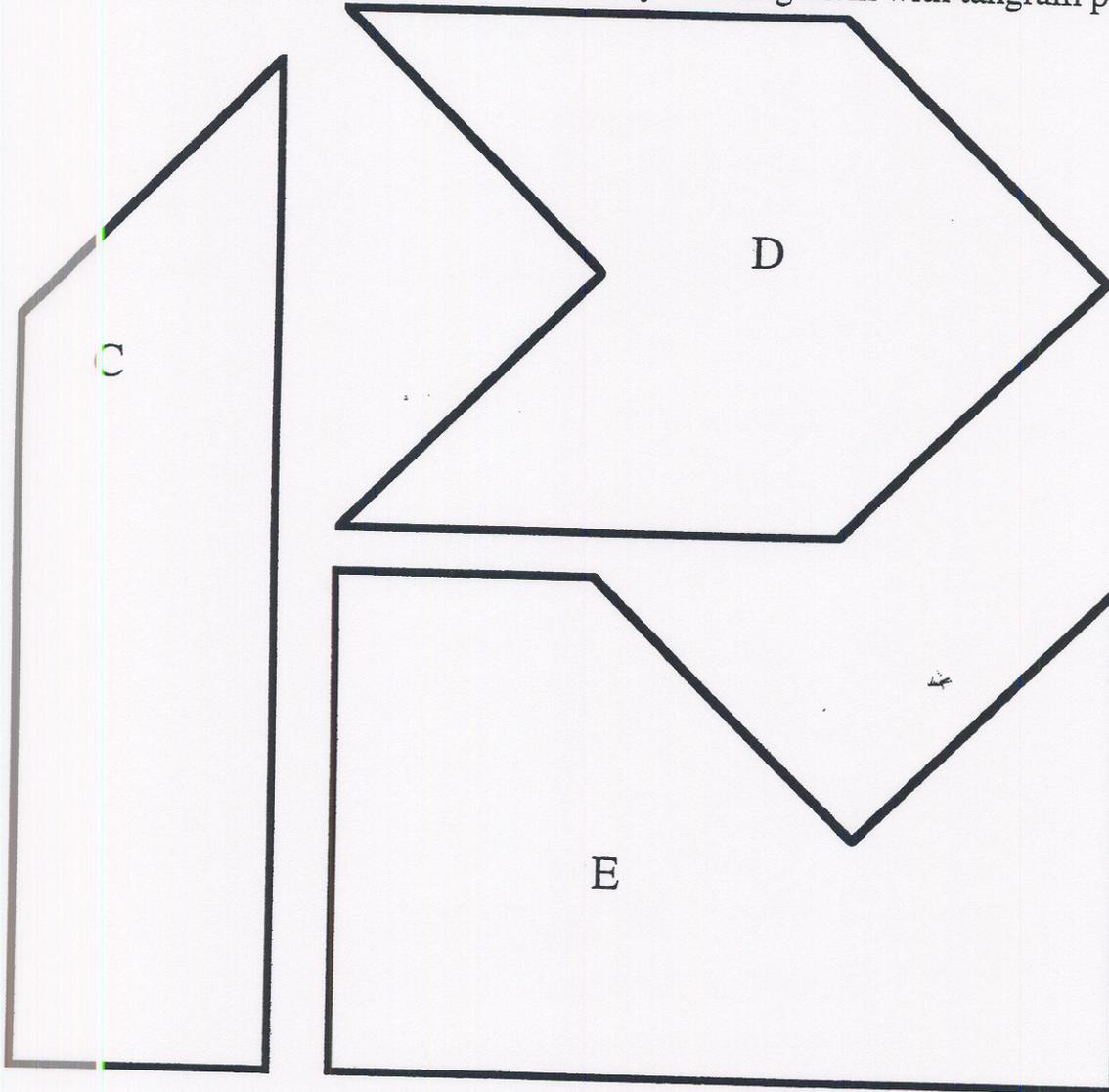
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Let the area of the small triangle be equal to 1 unit of area. Estimate the number of area units in the shapes below. After completing your estimates, use the tangram pieces to find the actual area of each shape.

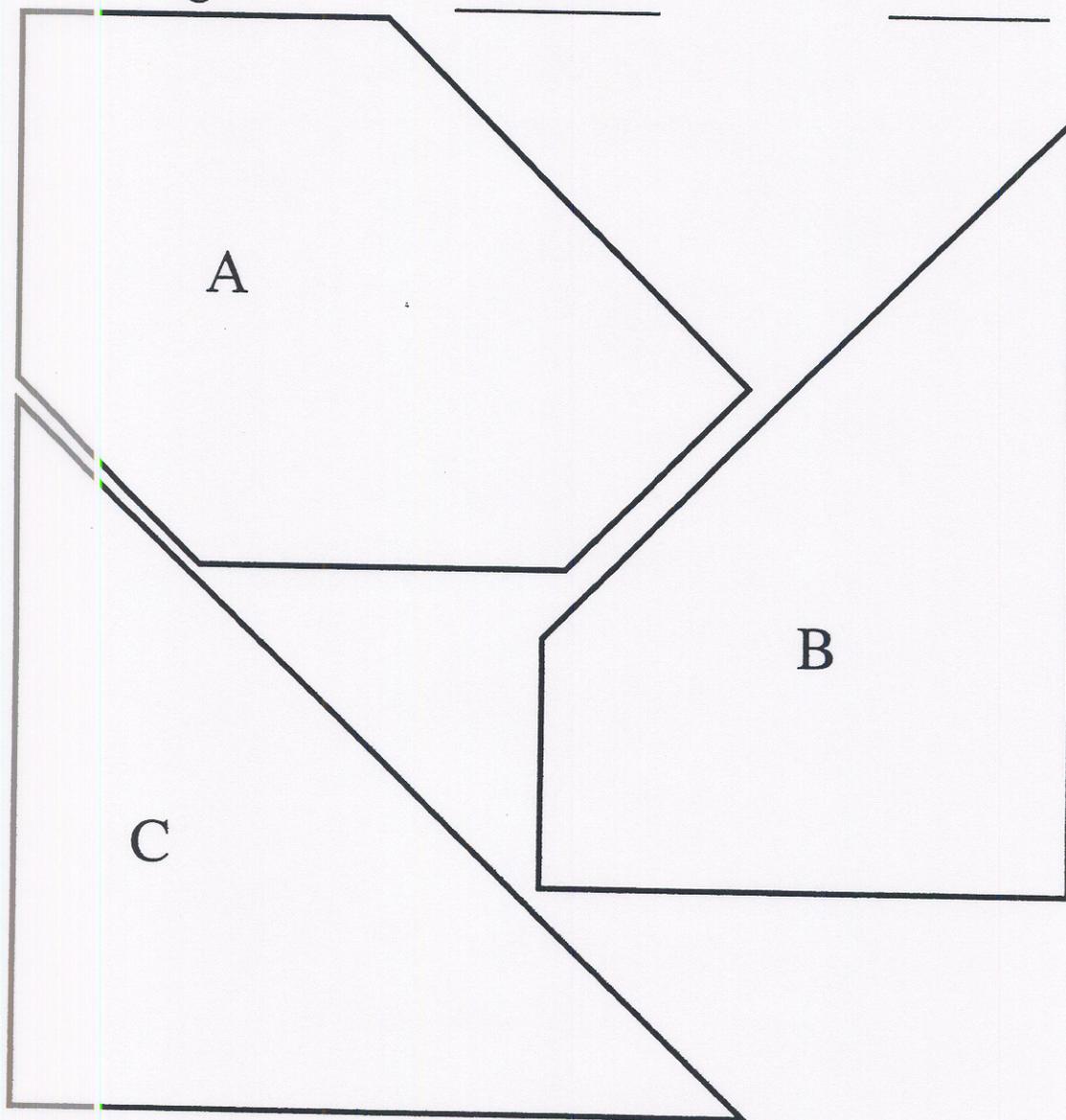| Shape	Estimated Area	Actual Area
A	_____	_____
B	_____	_____
C	_____	_____

A

B

C

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A.   Make a tangram-shape puzzle with an area of 12-square units in the space below. Trace the outline of your puzzle. Exchange puzzles with another participant. Have this person use their tangram pieces to complete the 12-square unit puzzle you designed.

B.   What would be the area of a tangram-shape puzzle that used all seven of the tangram pieces? _____