Decomposing Polygons to Find Area

Directions: Decompose each polygon into rectangles and triangles to find the area.

1. Section the shape into rectangles and/or triangles.
2. Find the area of each rectangle and triangle.
3. Find the total area of the polygon.

1. Section into rectangles or triangles.

2. Section into rectangles or triangles.

3. Section into rectangles or rectangles

4. Section into rectangles or triangles.

5. Create your own polygon. You will need to be able to divide your polygon into at least 3 triangles and/or rectangles. Solve.

Total Area=

Total Area=

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Key- One possible solution is given. However students may solve each problem in various ways.

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1. **Section into rectangles or triangles.**
   - Work Space
   - $6 \text{ cm} \times 6 \text{ cm} = 36 \text{ cm}^2$
   - $6 \text{ cm} \times 6 \text{ cm} = 36 \text{ cm}^2$
   - $36 \text{ cm}^2 + 36 \text{ cm}^2 = 72 \text{ cm}^2$
   - Total Area $= 72 \text{ cm}^2$

2. **Work Space**
   - $4 \text{ cm} \times 5 \text{ cm} = 20 \text{ cm}^2$
   - $20 \text{ cm}^2 \div 2 = 10 \text{ cm}^2$
   - Total Area $= 10 \text{ cm}^2 + 35 \text{ cm}^2 + 10 \text{ cm}^2 = 55 \text{ cm}^2$

3. **Section into rectangles or triangles.**
   - Work Space
   - $8 \text{ in} \times 4 \text{ in} = 32 \text{ in}^2$
   - $6 \text{ in} \times (11 \text{ in} - 8 \text{ in}) = 18 \text{ in}^2$
   - $32 \text{ in}^2 + 18 \text{ in}^2 = 50 \text{ in}^2$
   - Total Area $= 50 \text{ in}^2$

4. **Section into rectangles or triangles.**
   - Work Space
   - $6 \text{ in} \times 8 \text{ in} = 48 \text{ in}^2$
   - $6 \text{ in} \times 4 \text{ in} = 12 \text{ in}^2$
   - $4 \text{ in} \times 3 \text{ in} = 12 \text{ in}^2$
   - $(4 \text{ in})^2 = 16 \text{ in}^2$
   - $(4 \text{ in} + 5 \text{ in})(8 \text{ in} - 4 \text{ in}) = 9 \text{ in} \times 4 \text{ in} = 36 \text{ in}^2$
   - Total Area $= 48 \text{ in}^2 + 12 \text{ in}^2 + 12 \text{ in}^2 + 16 \text{ in}^2 + 18 \text{ in}^2 = 100 \text{ in}^2$