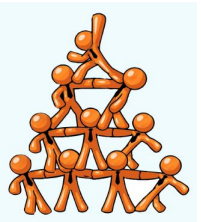
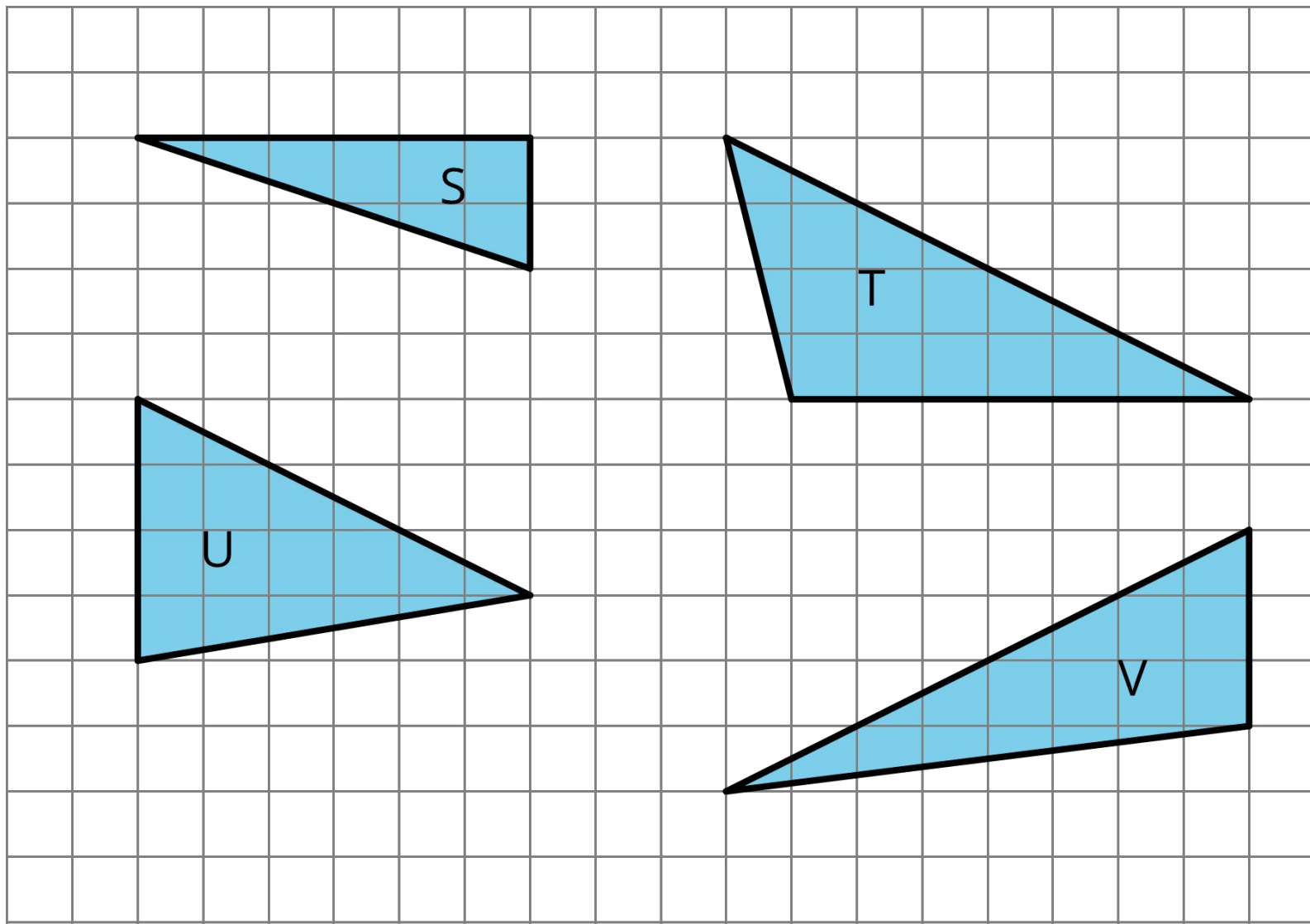


1-11: Learning Goals

- Let's investigate polygons and their areas.

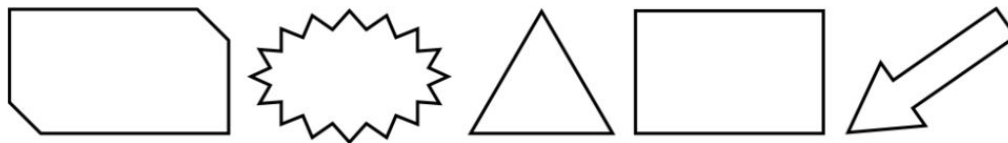
1-11-1: Bases and Heights

Which	One
Doesn't	Belong?



1-11-2: What Are Polygons?

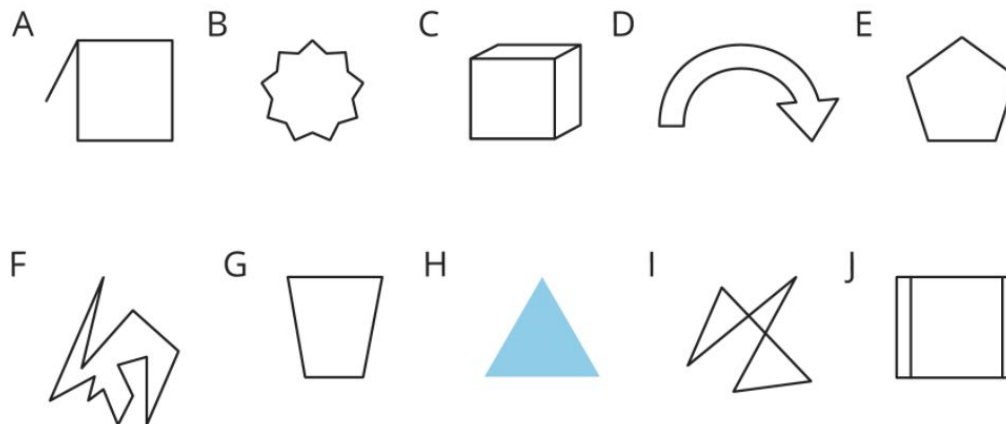
Here are five **polygons**:



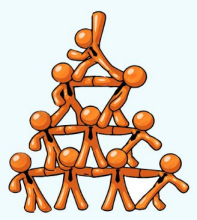
Here are six figures that are *not* polygons:



1. Circle the figures that are polygons.

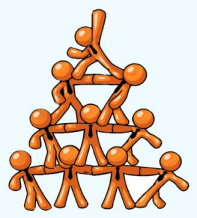
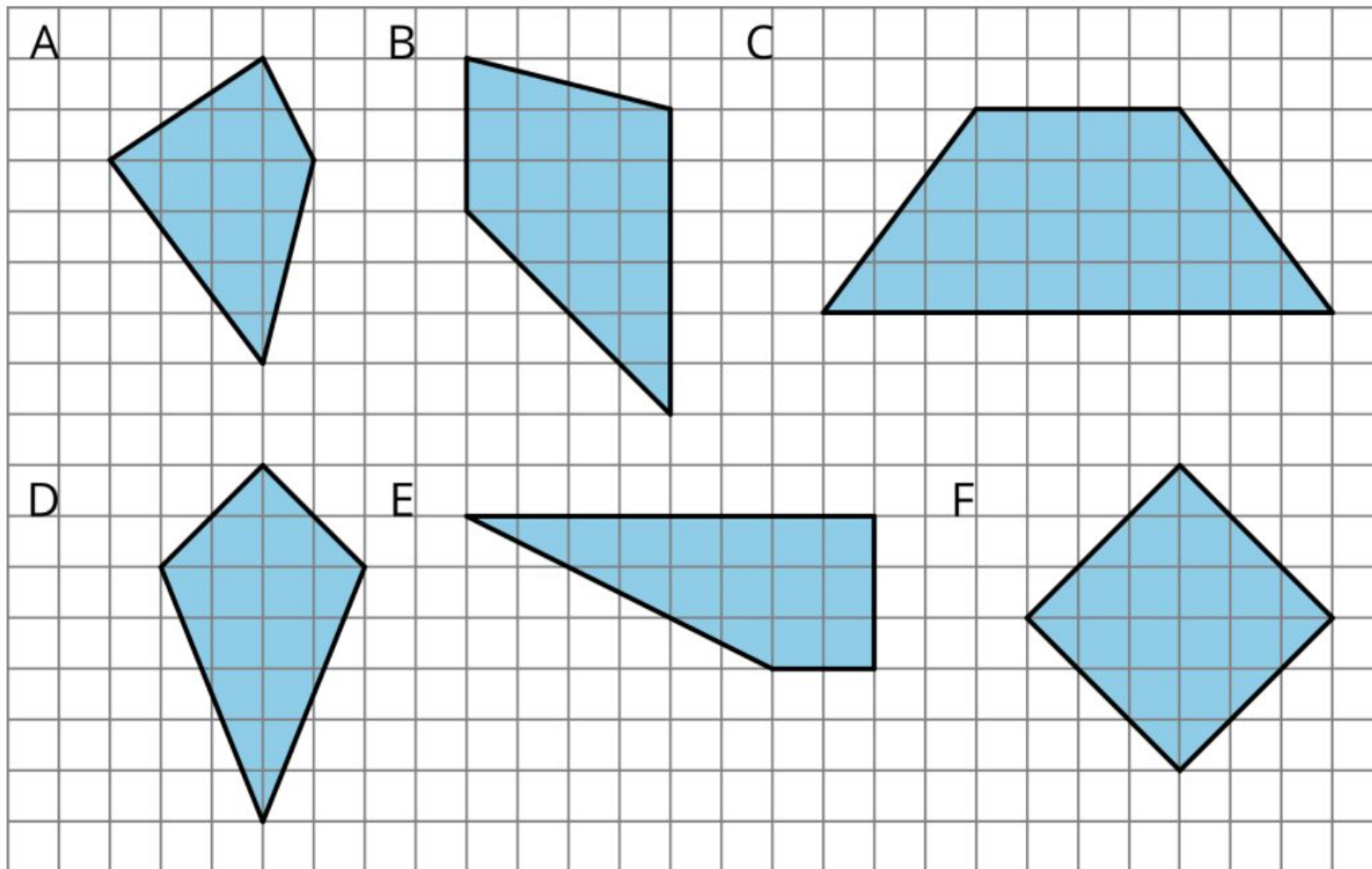


2. What do the figures you circled have in common? What characteristics helped you decide whether a figure was a polygon?



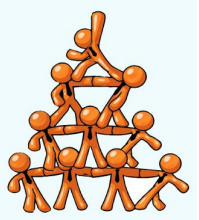
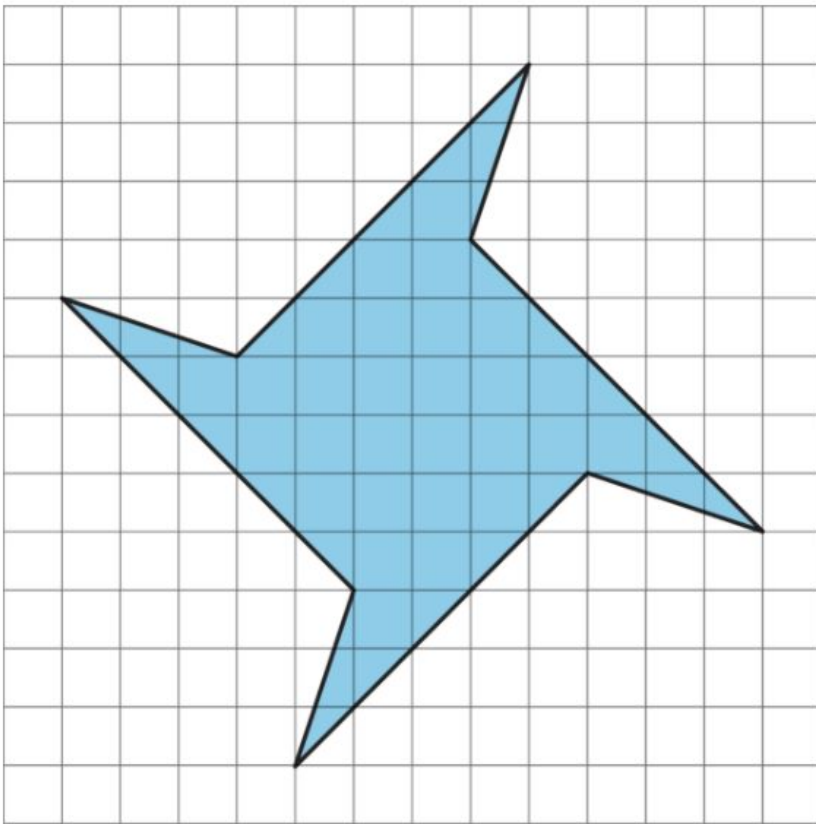
1-11-3: Quadrilateral Strategies

Find the area of *two quadrilaterals* of your choice. Show your reasoning.

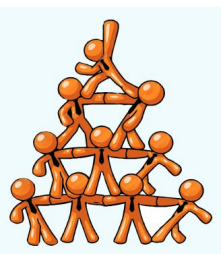
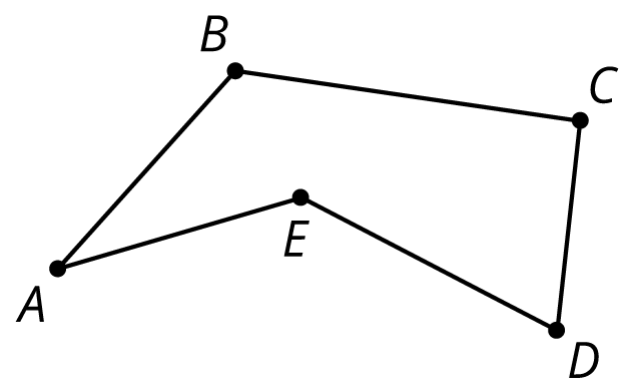
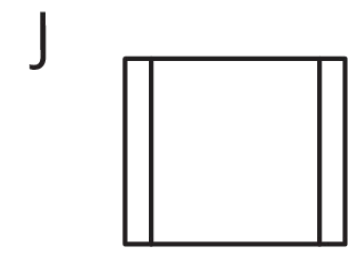
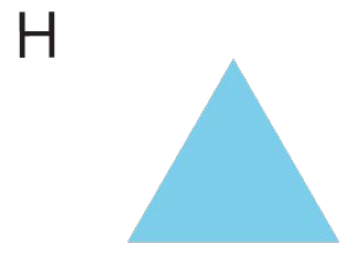
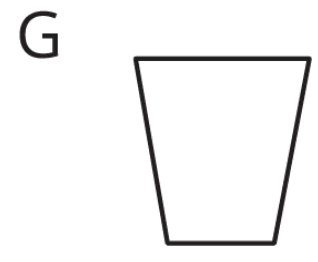
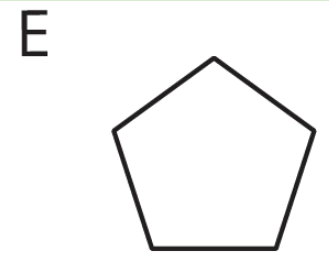
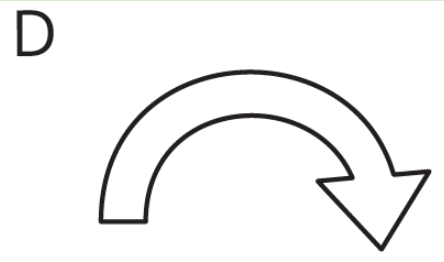
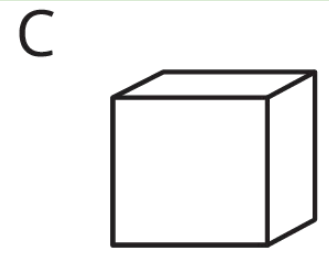
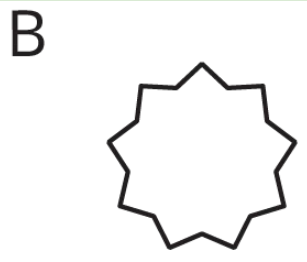
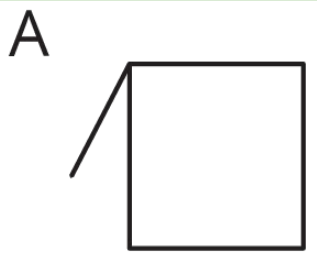


1-11-4: Pinwheel

Find the area of the shaded region in square units. Show your reasoning.



1-11: Lesson Synthesis



1-11: quadrilateral

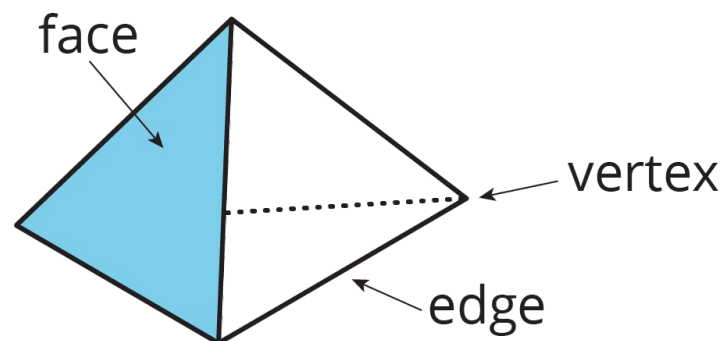
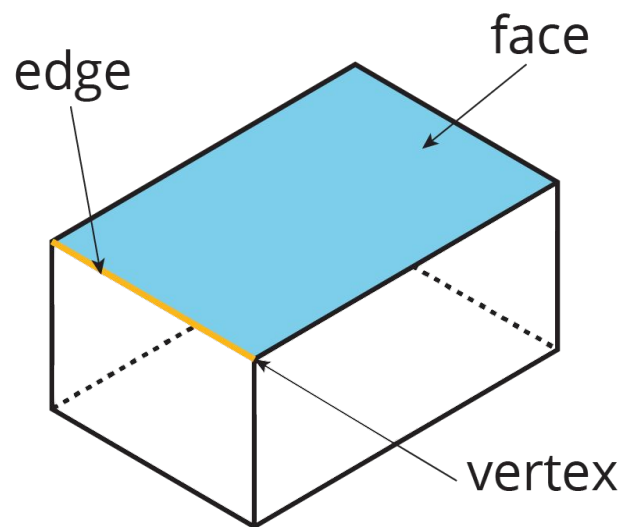
A quadrilateral is a four-sided polygon.

1-11: vertex (vertices)

A vertex is a point where two edges meet in a polygon or a polyhedron.

1-11: edge

A line segment in a polygon is called an edge (it is also called a side). A line segment where two faces meet in a polyhedron is also called an edge.



1-11: Side

A line segment in a polygon is called a side (it is also called an edge).

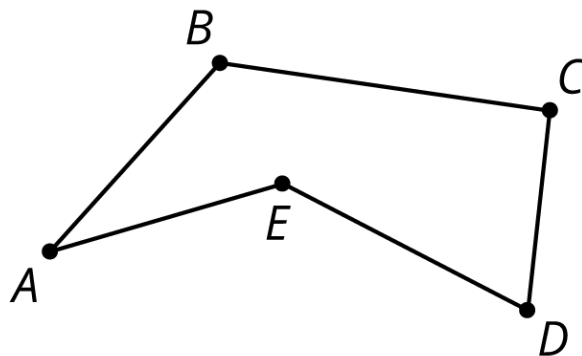
Sometimes the faces of a polyhedron are called its sides.

1-11: polygon

A polygon is a two-dimensional figure composed of a sequence of straight line segments, connected end-to-end, with the last one connecting back to the first. We call the line segments the edges or sides of the polygon. We call a point where the edges connect a vertex. The edges of a polygon never cross each other.

The plural of vertex is vertices. A polygon always encloses a two-dimensional region.

Here is a polygon with five vertices A , B , C , D , and E and five edges (or sides): segments AB , BC , CD , DE , and EA .



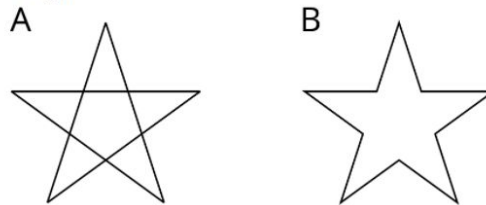
1-11: Learning Targets

- I can reason about the area of any polygon by decomposing and rearranging it, and by using what I know about rectangles and triangles.
- I can describe the characteristics of a polygon using mathematical vocabulary.



1-11-5: Triangulation

1. Here are two five-pointed stars. A student said, "Both figures A and B are polygons. They are both composed of line segments and are two-dimensional. Neither have curves." Do you agree with the statement? Explain your reasoning.



2. Here is a five-sided polygon. Describe or show the strategy you would use to find its area. Mark up and label the diagram to show your reasoning so that it can be followed by others. (It is not necessary to actually calculate the area.)

