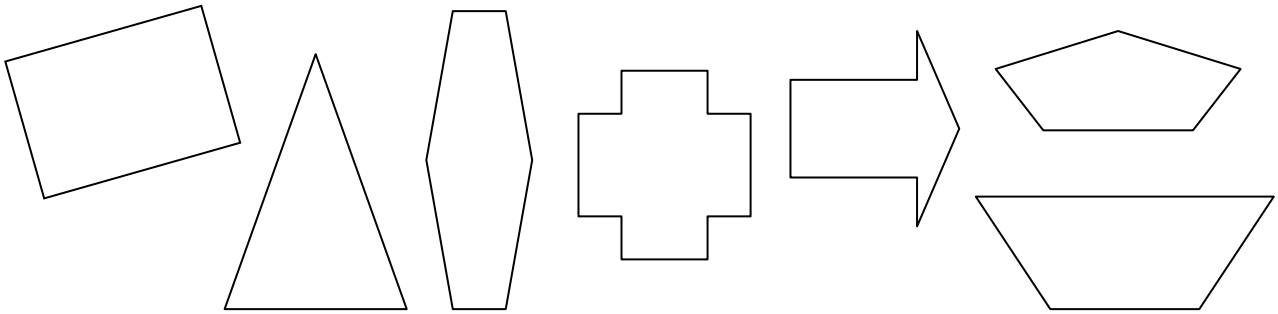
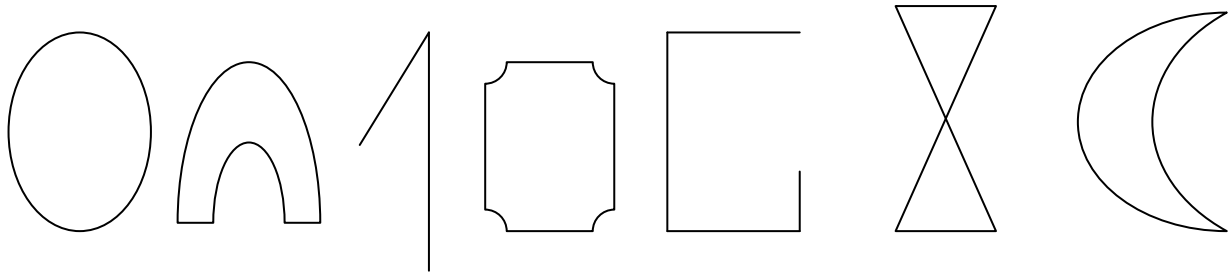
DEFINING POLYGONS

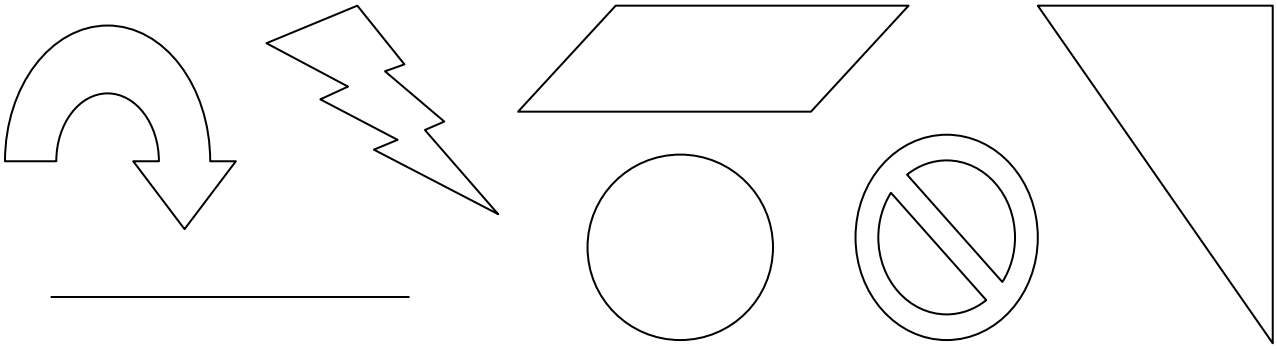
All of these are polygons.



None of these are polygons.



Which of these are polygons?



Why? What attributes does a polygon have to have?

Write a definition of a polygon from this activity.

Constructing Polygons

On a geoboard, create each shape described below and record on geopaper. Compare your polygon with your classmates. How are they alike and how are they different?

Set A: Focus on Sides and Angles

Try to create a different polygon that fits each description.

a) 4 sides and 4 right angles
b) 3 sides and 1 right angle
c) 4 equal sides
d) 4 sides with none congruent and no right angles
e) 5 sides
f) 5 sides and at least 1 right angle
g) 6 sides
h) 6 sides and at least one acute angle
i) 8 sides
j) 8 sides and at least one acute angle
k) 12 sides
l) Make a figure of your choice with more than 6 sides. How many sides does it have? How many angles?

Set B: Focus on Parallel and Perpendicular Sides

a) 4 sides with exactly 2 sides parallel
   Does this figure have a specific name?
b) 4 sides with 2 pairs of parallel sides
   What is the name of this polygon?
c) 4 sides with exactly 1 pair of sides perpendicular
   Does this figure have a specific name?
d) 4 sides with 2 pairs of sides perpendicular
   Can you make a different figure with these attributes?
   What else do you notice about this figure?
e) 4 sides with no parallel sides
   Does your shape have any perpendicular sides?
f) 4 sides with no sides perpendicular
   Could this polygon have parallel sides? Does yours?
g) 3 sides with 2 sides perpendicular
   What is the specific name of this polygon?
h) 5 sides with exactly 1 pair of parallel sides
   Does your figure have perpendicular sides? If so, can you make one that doesn't?
i) 6 sides with 3 pairs of parallel sides
   What else is true about this shape?

Geoboard Paper