Math Live – *Polygons*: Assessment Task

Grade: 3 **Strand**: Shape and Space (3-D Objects and 2-D Shapes) **Outcome:** 7

SPECIFIC LEARNER OUTCOME - Space and Shape (3-D Objects and 2-D Shapes)	
SS 7	Sort regular and irregular polygons, including: • triangles • quadrilaterals • pentagons • hexagons • octagons according to the number of sides.

PROCESSES **Communication (C), Connections (CN), Mental Mathematics and Estimation (ME), Problem Solving (PS), Reasoning (R), Technology (T), Visualization (V)**
C, CN, R, V

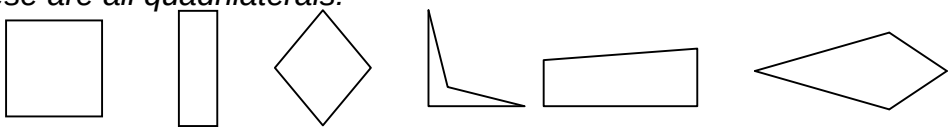
EVIDENCE the student has achieved the outcomes
Each student will:

- Sort and name polygons according to the number of sides, angles, and vertices.
- State the relationship between the number of sides, number of interior angles, and the number of vertices in polygons.
- Describe polygons according to their attributes.

TEACHER NOTE

- In this assessment task, students will be asked to demonstrate their understanding of the attributes of polygons. They will identify, sort and name these polygons according to the number of vertices. Finally, students will describe the relationship between the number of sides, the number of interior angles, and the number of vertices of any polygon.
- Materials required: scissors, glue
- Students must understand that polygons are any closed figure made with straight line segments. The measure of the sides and angles may vary in a polygon.

These are all quadrilaterals:



Regular polygons are polygons with equal sides and equal angles.

- Early finishers can use grid paper to create as many different quadrilaterals as they can.

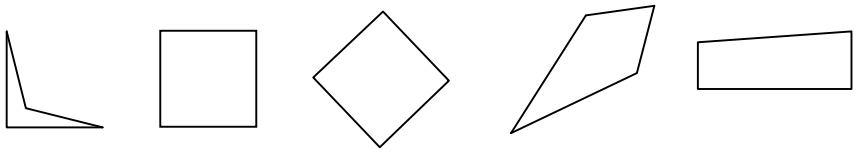
Math Live – *Polygons*: Assessment Task

1. Cut out and sort the polygons provided according the number of vertices. Name each set of polygons you have sorted.

Name _____# vertices ____	Name _____# vertices ____
Name _____# vertices ____	Name _____# vertices ____

2. Describe the relationship between the number of vertices, sides, and number of angles in any polygon.

3. These polygons all belong to the same group. What attributes do they have in common? How are these shapes different from each other?



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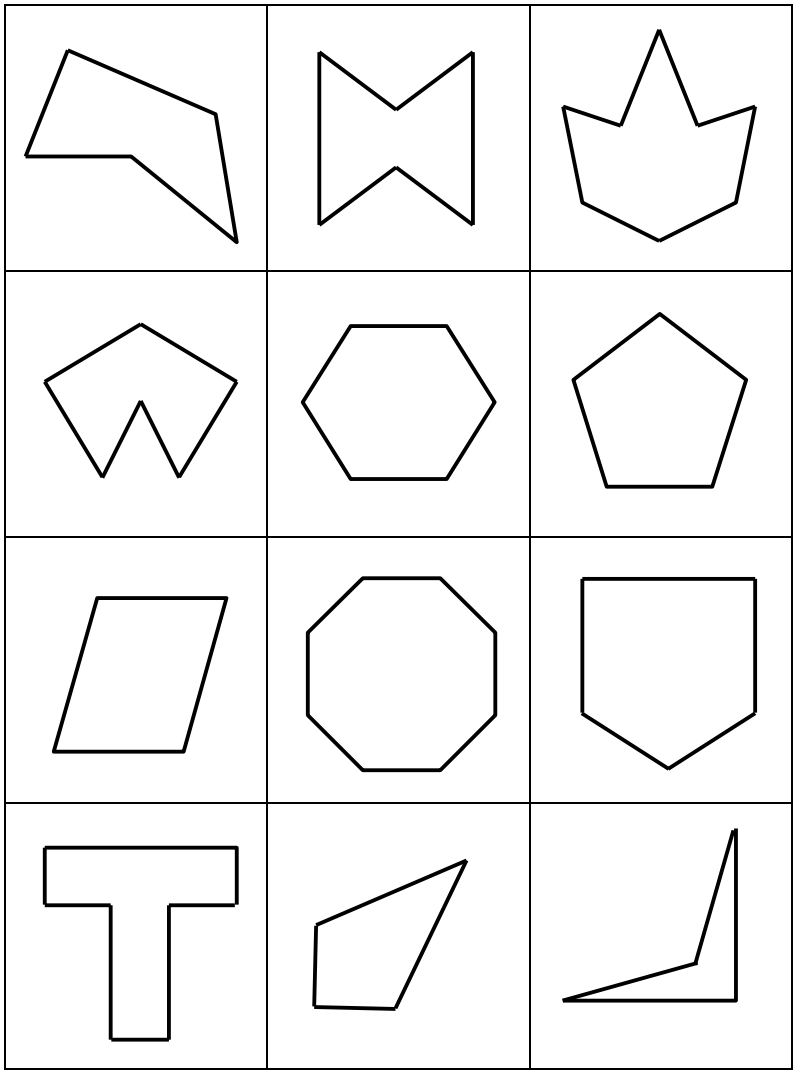


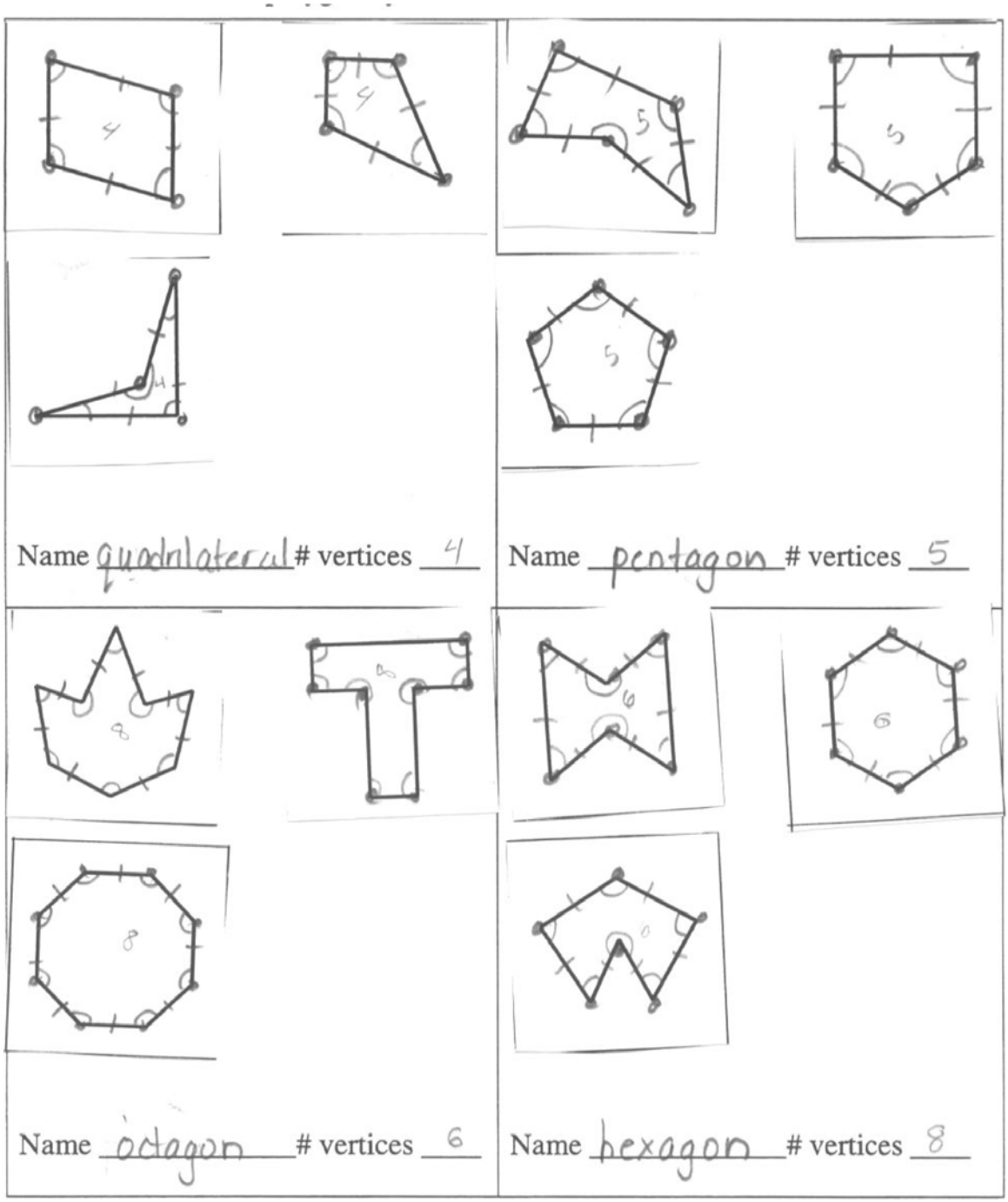
Math Live –*Polygons*: Scoring Guide

Level / Criteria	Sorts and names polygons Questions #1	Relates the number of sides, angles, and vertices of a polygon Question #2	Describes attributes of polygons Question #3
Wow!	Correctly sorts and names all polygons according to the number of vertices	Generalizes to clearly state that any polygon will have the same number of sides, vertices, and interior angles	Thoroughly describes attributes of the quadrilaterals by comparing and contrasting them using correct mathematical terms
Yes			Describes attributes of the quadrilaterals by comparing and contrasting their sides, angles and vertices
Yes, but…	Correctly sorts and names most polygons according to the number of vertices	States that specific polygons have the same number of sides, vertices, and interior angles or draws this relationship with only two of the attributes	Describes the quadrilaterals by comparing and contrasting them according to only one or two specific attributes
No, but…	Fails to correctly sort polygons according to the number of vertices and/or fails to name them properly	States an incorrect or confusing relationship between the number of sides, angles, and vertices of a polygon	Incorrectly describes the quadrilaterals or compares and contrasts them without referring to specific attributes
Insufficient / Blank	No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task	No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task	No score awarded due to insufficient evidence of student learning based on the requirements of the assessment task

Wow!

PERPLEXING POLYGONS - Student Assessment Task

Cut out and sort the polygons provided according the number of vertices. Name each set of polygons you have sorted.



Name quadrilateral # vertices 4

Name pentagon # vertices 5

Name octagon # vertices 6

Name hexagon # vertices 8

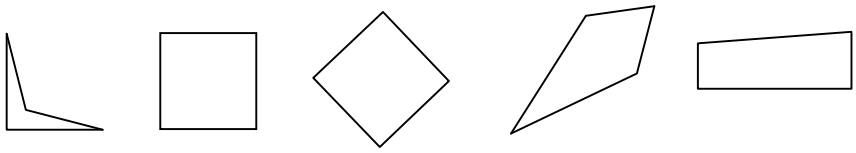
Wow!

Describe the relationship between the number of vertices in any polygon and number of sides and number of angles.

Any polygon has the same number of sides, angles and vertices

octagon 8 sides 8 angles, 8 vertices
heptagon 7 sides 7 angles, 7 vertices
hexagon 6 sides 6 angles, 6 vertices

These polygons all belong to the same group. What attributes do they have in common? How are these shapes different from each other?



They are all quadrilaterals and so have 4 sides (straight ones only!), 4 vertices and 4 angles.

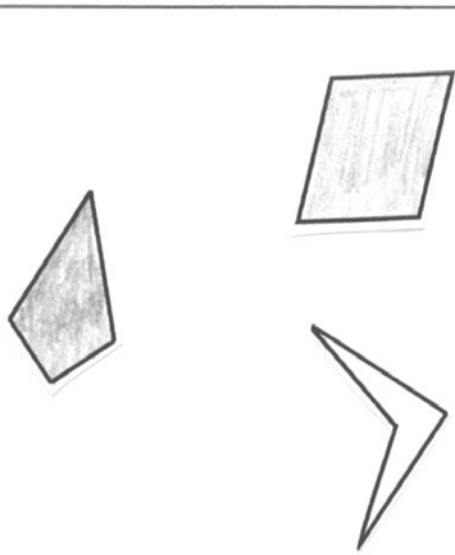
They are diffrent cause 2 □ ◇ are regular and 3 aren't. (they have different size angles and lengths of sides)

* □ ◇ are the same except only 1 is turned, The others have different lengths of sides + size angles from each other too and ◺ has even got one angle greater than 180°!

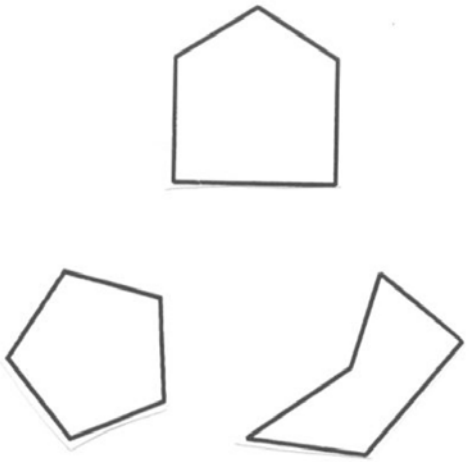
Yes

PERPLEXING POLYGONS - Student Assessment Task

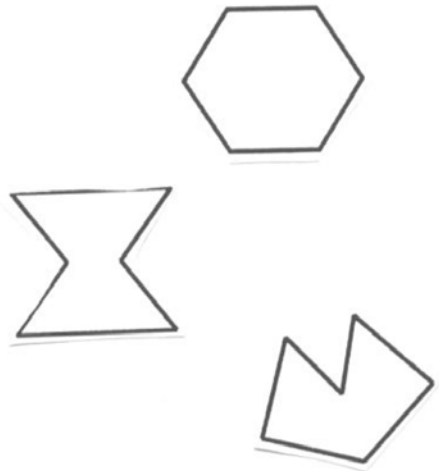
1. Cut out and sort the polygons provided according the number of vertices. Name each set of polygons you have sorted.



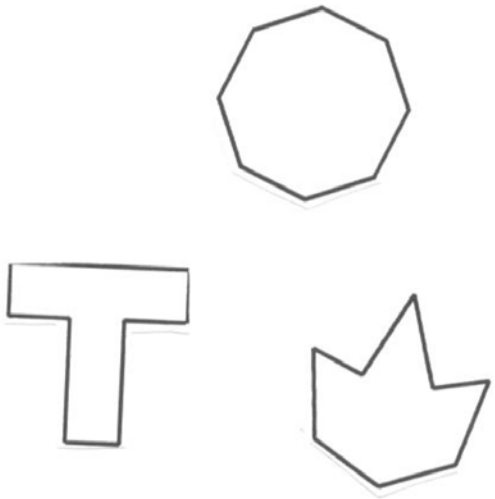
Name Quadrilateral # vertices 4



Name Pentagon # vertices 5



Name Hexagon # vertices 6



Name Octagon # vertices 8

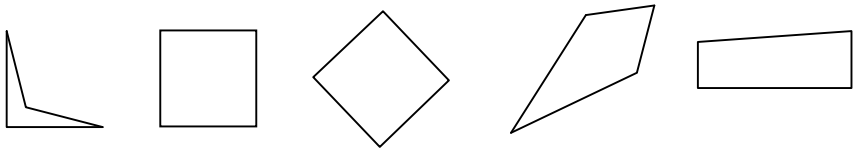
Yes

2. Describe the relationship between the number of vertices in any polygon and number of sides and number of angles.

① The sides and angles in a polygon are the same amount.

② In a polygon the vertices are the same amount as the sides.

3. These polygons all belong to the same group. What attributes do they have in common? How are these shapes different from each other?



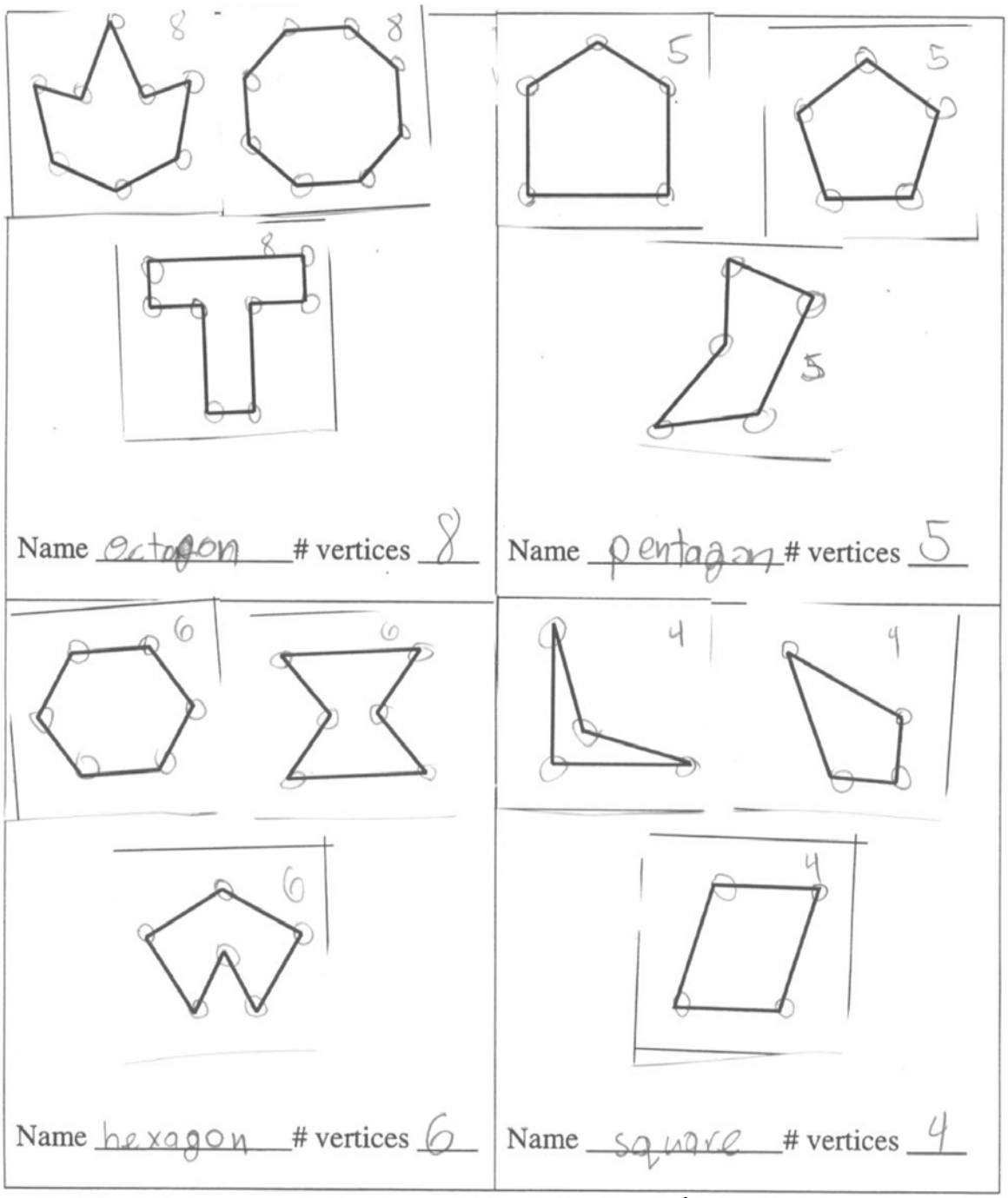
① They all have four sides (All quadrilaterals). They also have the same amount of vertices and angles

② They are different from each other because the angles are different sizes and the sides are different lengths.

Yes, but

PERPLEXING POLYGONS - Student Assessment Task

1. Cut out and sort the polygons provided according the number of vertices. Name each set of polygons you have sorted.



Square instead of quadrilateral

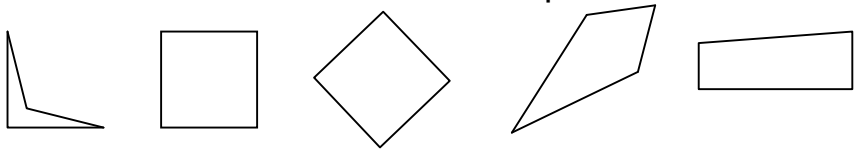
Yes, but

2. Describe the relationship between the number of vertices in any polygon and number of sides and number of angles.

The number of sides a polygon has is the number of vertices it has. A pentagon has 5 sides so it must have 5 vertices.

3. These polygons all belong to the same group. What attributes do they have in common? How are these shapes different from each other?

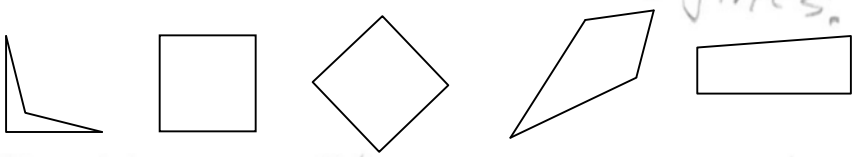
Example #1



All the polygons have 4 sides and they all have 4 vertices.

Some of the sides on these polygons are different lengthes.

Example #2

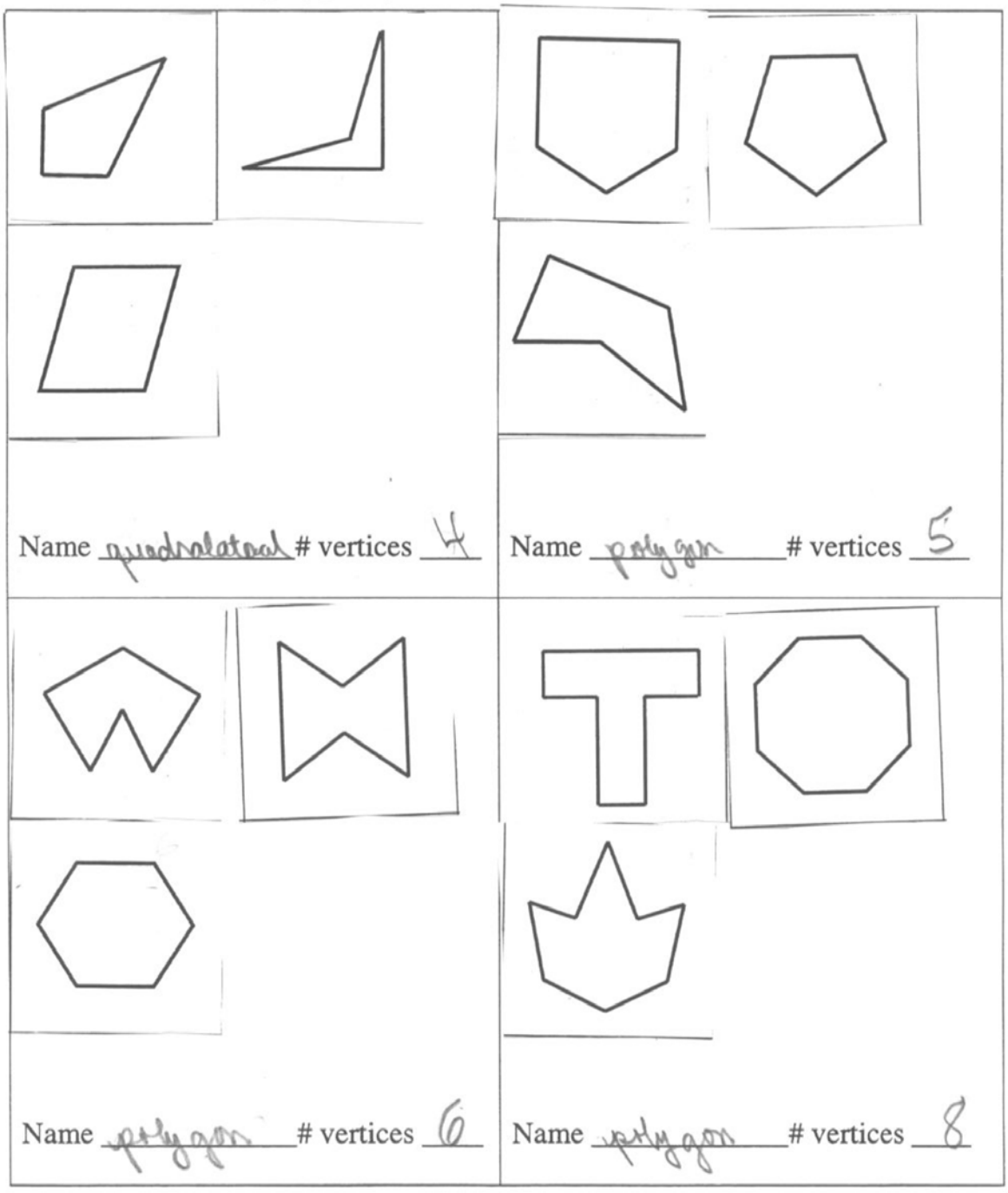


All these Shapes are 4 sides.

Some shapes have different angles.

PERPLEXING POLYGONS - Student Assessment Task

1. Cut out and sort the polygons provided according the number of vertices. Name each set of polygons you have sorted.



No, but

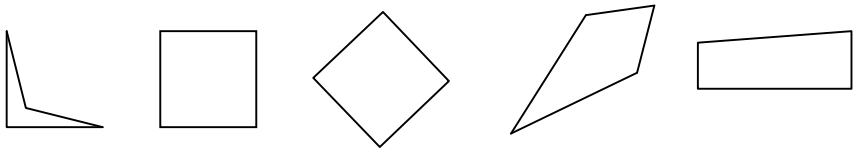
2. Describe the relationship between the number of vertices in any polygon and number of sides and number of angles.

The sides and angles are equal.

Two Student Samples

Same # of sides.
Sometimes same # of angles but sometimes different

3. These polygons all belong to the same group. What attributes do they have in common? How are these shapes different from each other?



They are all polygons. Some are normal and some are not. They are different shapes and sizes