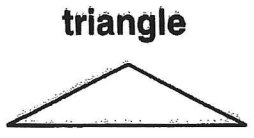


Identifying Polygons

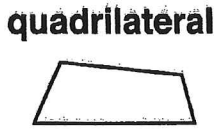
CHAPTER 8

All **polygons** have 3 or more straight sides. When 2 sides of a **polygon** meet, they form a **vertex**.

These are **polygons**.



3 sides
3 vertices



4 sides
4 vertices



5 sides
5 vertices



6 sides
6 vertices



7 sides
7 vertices



8 sides
8 vertices

Write the name of each polygon next to its picture. Use the words in the box.

quadrilateral	pentagon	triangle	octagon
---------------	----------	----------	---------

1. quadrilateral 2. octagon

3. Triangle 4. Pentagon

Draw the polygon. Write the name beneath your drawing.

5. It has 3 sides.
It has 3 vertices.



triangle.

6. It has 4 sides.
It has 4 vertices.



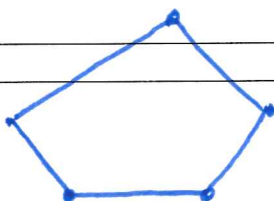
quadrilateral

Name: Key

Hour: _____

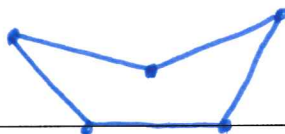
Polygon Notes

A **polygon** is: A closed plane figure with sides as line segments. The number of sides is equal to the # of angles.
 -Each line segment is called a **side** of the polygon. Each endpoint where the sides meet is called a **vertex** of the polygon.



A **convex** polygon is:

A **concave** polygon is:



You classify a polygon by the number of sides it has. Familiar polygons have specific names. The ones without specific names are called n-sided polygons, or n-gons. For instance, you call a 25-sided polygon a 25-gon.

Number of Sides	Name of Polygon
3	triangle
4	quadrilateral
5	pentagon
6	hexagon
7	heptagon
8	octagon
9	nonagon
10	decagon
11	undecagon
12	dodecagon
n	n-gon

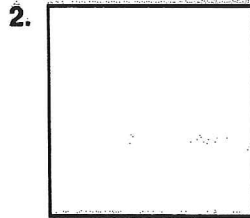
must have these mastered immediately.

Identifying Polygons

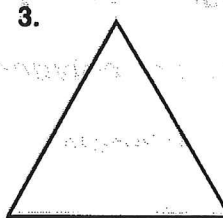
Name each polygon. Write the number of sides and vertices.



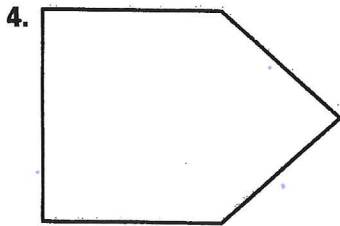
quadrilateral



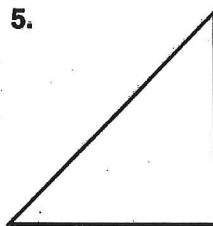
quadrilateral



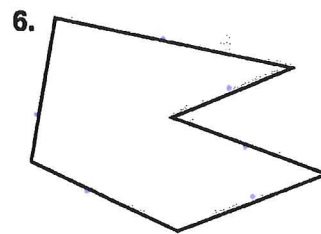
Triangle



pentagon



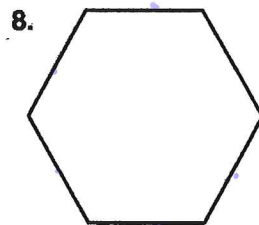
Triangle



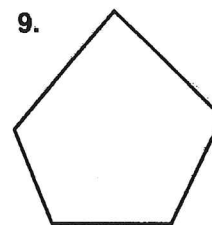
hexagon



quadrilateral



hexagon

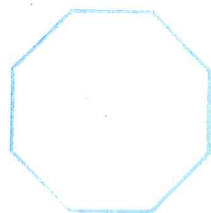


pentagon

10. Look back at exercise 7. What is another name for that kind of polygon?

11. The Ancient Greek word for 8 was *octa*.

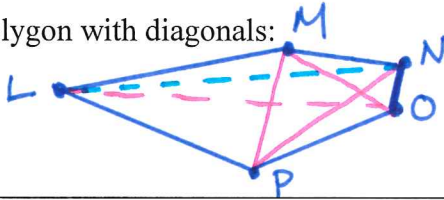
Draw an octagon.



*This is 4th grade work
So don't do this #. It is
only a quadrilateral*

A **diagonal** of a polygon is a line segment that connects two nonconsecutive vertices.

Draw a polygon with diagonals:



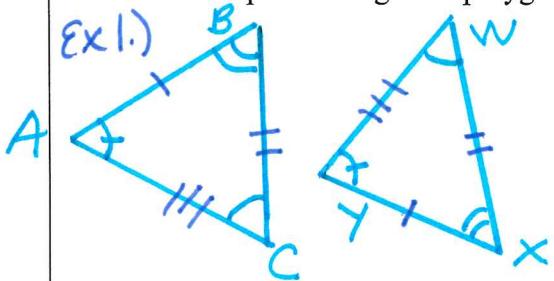
LN is a diagonal
Name the other diagonals.

LO, MP, MO, NP, LP
ANSWERS

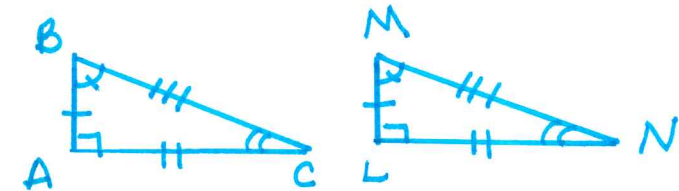
Two polygons are **congruent polygons** if and only if they are exactly the same size and shape.

The order matters when naming your congruent figures.

Draw an example of congruent polygons:



$$\triangle ABC \cong \triangle YXW$$

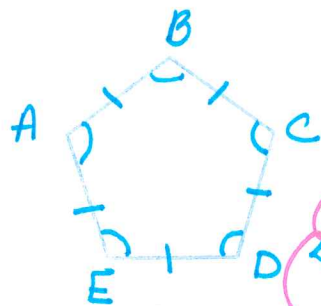


$$\triangle ABC \cong \triangle LMN$$

ORDER MATTERS

A **regular polygon** has ALL congruent sides and ALL congruent angles.

Draw examples:



Notice
 $AB \cong BC \cong CD \cong DE \cong EA$

AND

$$\angle A \cong \angle B \cong \angle C \cong \angle D \cong \angle E$$

Polygons

A general trapezoid is a quadrilateral with one pair of opposite sides

parallel

General trapezoid

Trapezoids

Right trapezoid

A right trapezoid is a trapezoid with one leg perpendicular to the parallel sides.

Isosceles trapezoid

An isosceles trapezoid is a trapezoid with one pair of congruent legs; recall the legs are the non-parallel sides of the trapezoid

Quadrilaterals

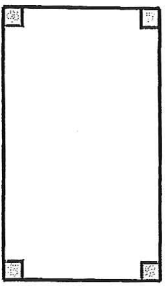
A 4 sided polygon

Parallelograms

A parallelogram is a quadrilateral with two pairs of opposite sides parallel

Rectangle

A rectangle is a parallelogram with four right angles.



Kites

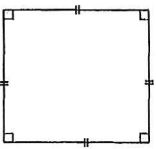
A kite is a quadrilateral with two pairs of consecutive congruent sides.

Rhombus

A rhombus is a parallelogram with four congruent sides.

Square

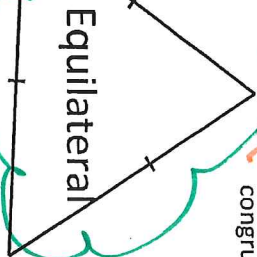
A square is a parallelogram with four right angles and four congruent sides.



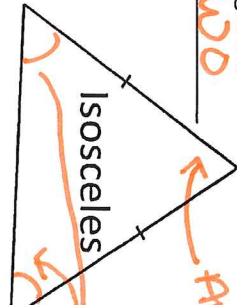
A square is also a rhombus and a rectangle. But a rhombus or rectangle's don't need to be squares. Not all rhombus are squares.

Polygons

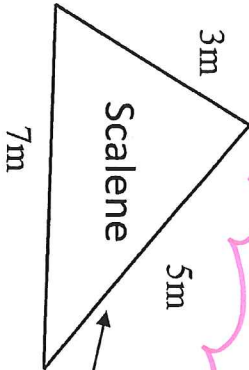
An equilateral triangle is a triangle with all 3 congruent sides



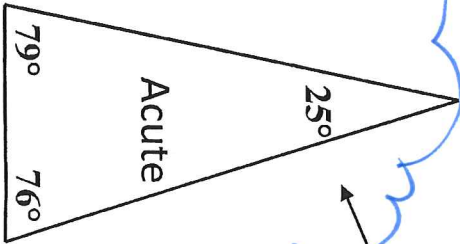
An isosceles triangle is a triangle with two congruent sides



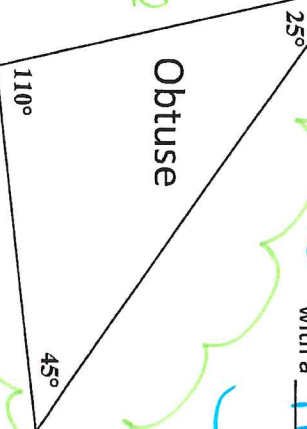
A scalene triangle is a triangle with no congruent sides



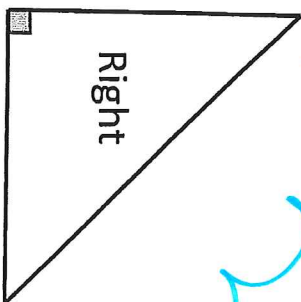
An acute triangle is a triangle with 3 (all) acute angles.



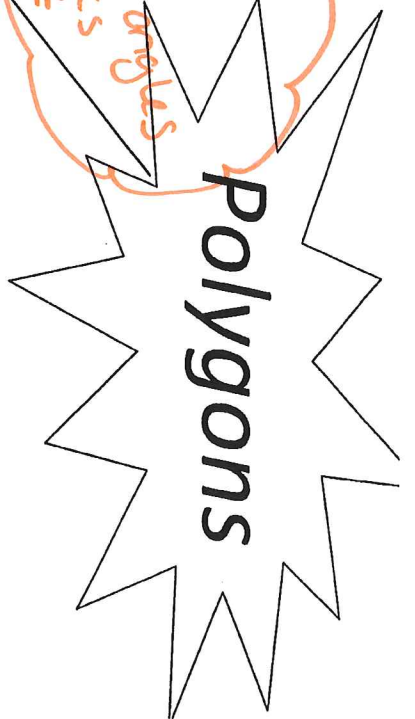
An obtuse triangle is a triangle with only one obtuse angle (\angle):



A right triangle is a triangle with a right angle



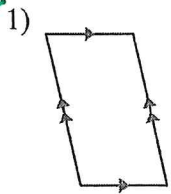
Triangle
3 Sides
POLYGON



Elementary Classification

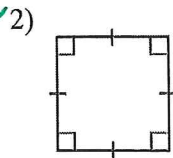
State the most specific name for each figure.

C



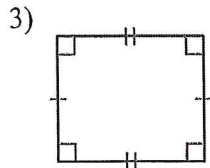
- A) kite
- B) quadrilateral
- C) parallelogram
- D) trapezoid

C



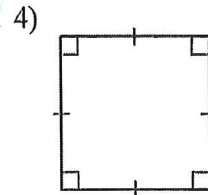
- A) quadrilateral
- B) trapezoid
- C) square
- D) kite

D



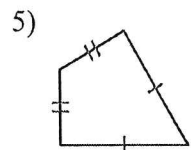
- A) trapezoid
- B) kite
- C) quadrilateral
- D) rectangle

D



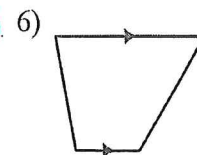
- A) trapezoid
- B) quadrilateral
- C) kite
- D) square

A



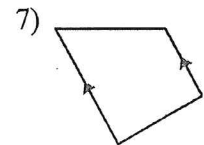
- A) kite
- B) isosceles trapezoid
- C) quadrilateral
- D) trapezoid

D



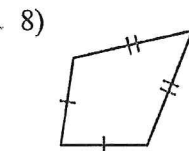
- A) kite
- B) quadrilateral
- C) isosceles trapezoid
- D) trapezoid

D



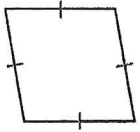
- A) kite
- B) quadrilateral
- C) isosceles trapezoid
- D) trapezoid

B



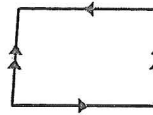
- A) trapezoid
- B) kite
- C) isosceles trapezoid
- D) quadrilateral

D 9)



- A) trapezoid
- B) kite
- C) quadrilateral
- D) rhombus

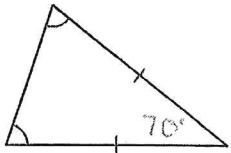
B 10)



- A) trapezoid
- B) parallelogram
- C) quadrilateral
- D) kite

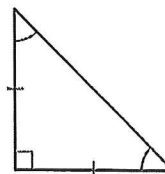
Classify each triangle by its angles and sides. Equal sides and equal angles, if any, are indicated in each diagram.

C 11)



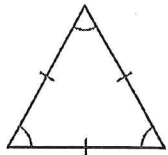
- A) equilateral
- B) right equilateral
- C) acute isosceles
- D) acute right

B 12)



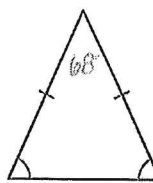
- A) obtuse scalene
- B) right isosceles
- C) right obtuse
- D) acute scalene

C 13)



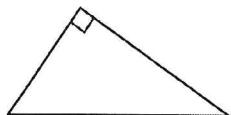
- A) acute obtuse
- B) obtuse scalene
- C) equilateral
- D) right scalene

C 14)



- A) acute isosceles
- B) acute scalene
- C) obtuse scalene
- D) right scalene

A 15)



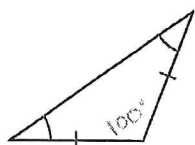
- A) right scalene
- B) right isosceles
- C) equilateral
- D) acute isosceles

C 16)



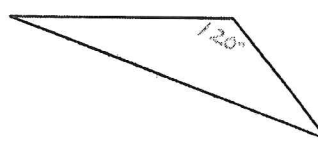
- A) acute scalene
- B) right equilateral
- C) obtuse isosceles
- D) obtuse scalene

A 17)



- A) obtuse isosceles
- B) acute scalene
- C) right isosceles
- D) obtuse scalene

C 18)



- A) equilateral
- B) right equilateral
- C) obtuse scalene
- D) right isosceles