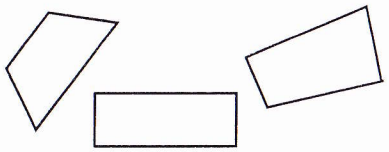
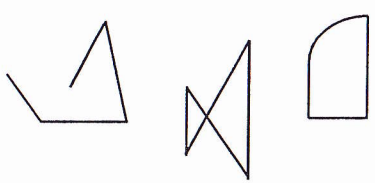
NOTES 7.2 & 7.3: PARALLELOGRAMS

Objective: _____

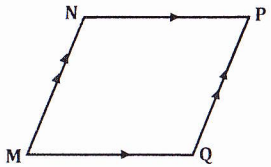
_____

QUADRILATERALS: A closed figure formed by 4 segments intersecting at their endpoints

PARALLELOGRAM: A quadrilateral in which opposite sides are parallel

EXAMPLE 1:



a) The parallelogram at the right has four vertices. They are:

_____

b) It would be NAMED: _____

c) The OPPOSITE SIDES of ▱MNPQ are: _____

d) The OPPOSITE ANGLES of ▱MNPQ are: _____

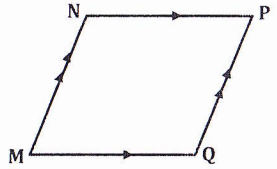
e) The CONSECUTIVE ANGLES of ▱MNPQ are: _____

_____

Using ▱MNPQ, what conjectures can you make about the following:

a) OPPOSITE SIDES

- _____
- _____



b) OPPOSTIE ANGLES

- _____

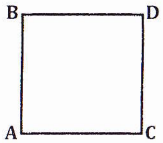
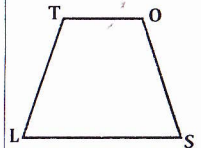
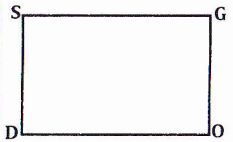
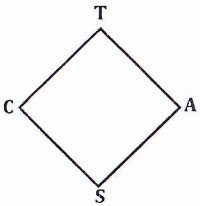
c) CONSECUTIVE ANGLES

- _____

When polygons have more than three sides, they have diagonals.

DIAGONALS: A segment joining the opposite vertices in a polygon

EXAMPLE 2: Name the following.

			
Vertices: _____	**Vertices:** _____	**Vertices:** _____	**Vertices:** _____
Name: _____	**Name:** _____	**Name:** _____	**Name:** _____
Opposite Vertices: _____	**Opposite Vertices:** _____	**Opposite Vertices:** _____	**Opposite Vertices:** _____
Diagonals: _____	**Diagonals:** _____	**Diagonals:** _____	**Diagonals:** _____

Notes 7.2 & 7.3 (Continued)

BISECT: To cut into equal parts

* Diagonals of a parallelogram ***bisect each other***.

Thus, parallelograms have five properties. They are:

1)_____

2)_____

3)_____

4)_____

5)_____

EXAMPLE 3:
Complete each statement regarding the parallelogram below.

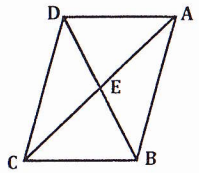
a) Name the parallelogram:_____

b) $\overline{AB} \parallel$ _____

c) $\overline{DA} \cong$ _____

d) $\angle CDA \cong$ _____

e) $\overline{DE} \cong$ _____

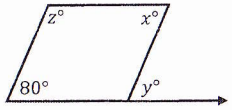


EXAMPLE 4:
If ABCD is a parallelogram, $m\angle A = x°$, and $m\angle D = (2x - 3)°$, find the value of 'x'.

EXAMPLE 5:
XYZW is a parallelogram with diagonals $\overline{XZ}$ and $\overline{YW}$ that intersect at point A. If $XA = 3m$, $ZA = 5m - 4$, and $YW = 10m$, find 'm'.

EXAMPLES:
For each parallelogram, find the values of 'x', 'y', and 'z'.

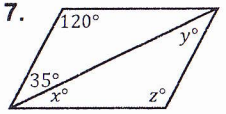
6.



$x =$ _____; $y =$ _____;

$z =$ _____

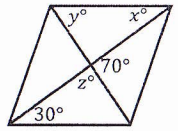
7.



$x =$ _____; $y =$ _____;

$z =$ _____

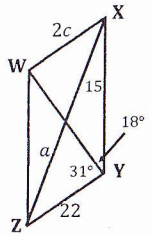
8.



$x =$ _____; $y =$ _____;

$z =$ _____

EXAMPLE 9:
WXYZ is a parallelogram. $m\angle ZWX = b°$ and $m\angle WXY = d°$. Find the values of 'a', 'b', 'c', and 'd'.



$a =$ _____

$b =$ _____

$c =$ _____

$d =$ _____