Today's Agenda

- Vocabulary

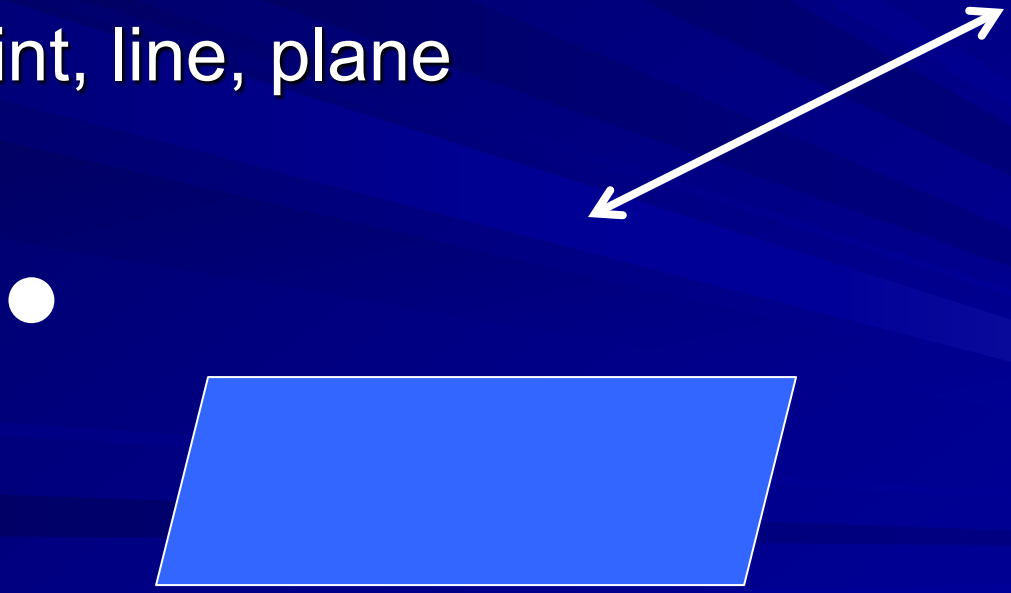
Geometry Vocabulary
Chapter 1

What is Geometry?

- Geometry is the study of shapes
- They studied Geometry in Ancient Mesopotamia & Ancient Egypt
- Geometry is important in the creation of art and architecture.

Three basic building blocks of Geometry

- The three basics building blocks of geometry are undefinable, however, they can be described and represented
  - Point, line, plane

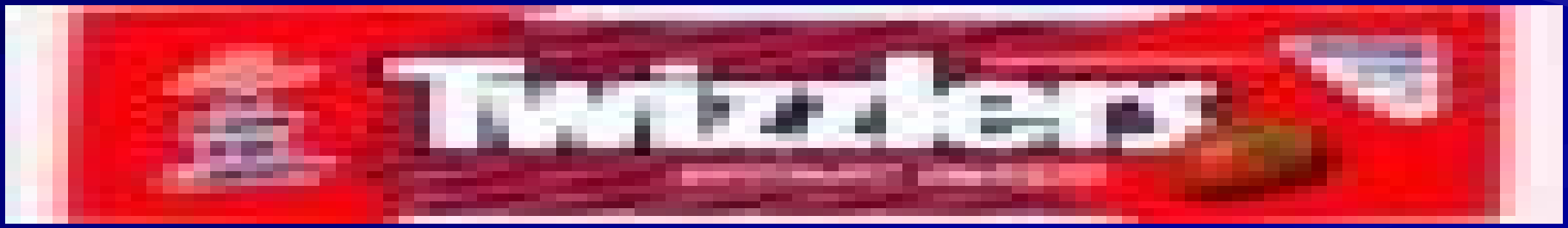


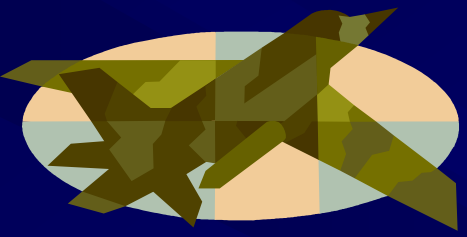
POINT

- A POINT is the most basic building block of Geometry.
- It has no size, only location.
- It is represented with a dot and named with a capital letter.
- The Hershey Kiss represents a POINT on the line as does the red dot

LINE

- A LINE is straight continuous arrangement of infinitely many points
- It extends forever (infinitely) in two directions
- Name a line by giving the letter names of any two points on the line and placing the line symbol above the letters: $\overleftrightarrow{ED}$, $\overleftrightarrow{DE}$





PLANE

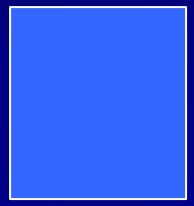
- A PLANE has length and width, but no thickness .(no, not the one that flies!)
- It is a flat surface that extends infinitely along its length and width.
- A plane is represented with a four-sided figure, usually a parallelogram.
- A plane is named with a script capital letter, such as $\mathcal{P}$

Plane

- Imagine sitting on a row boat in the middle of the ocean. No matter which way you look…all you see is water…forever

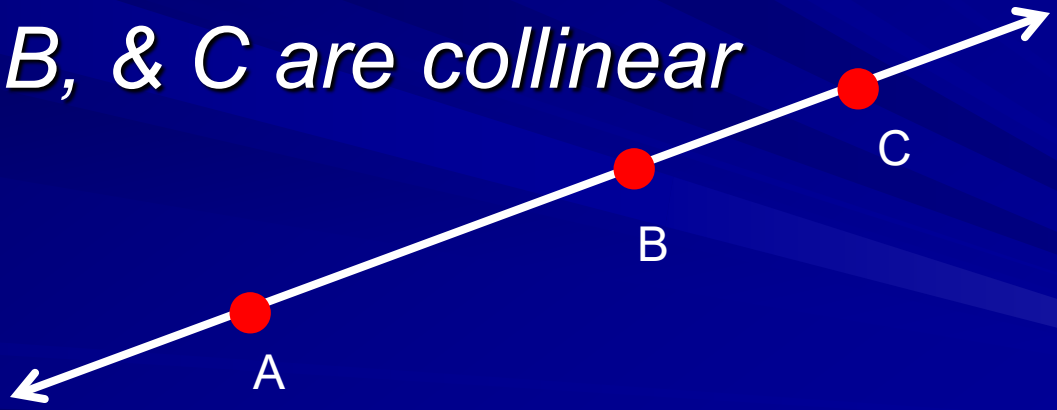
Definition

- A statement that clarifies or explains the meaning of a word or a phrase
  - *Square is a quadrilateral that is equiangular and equilateral.*



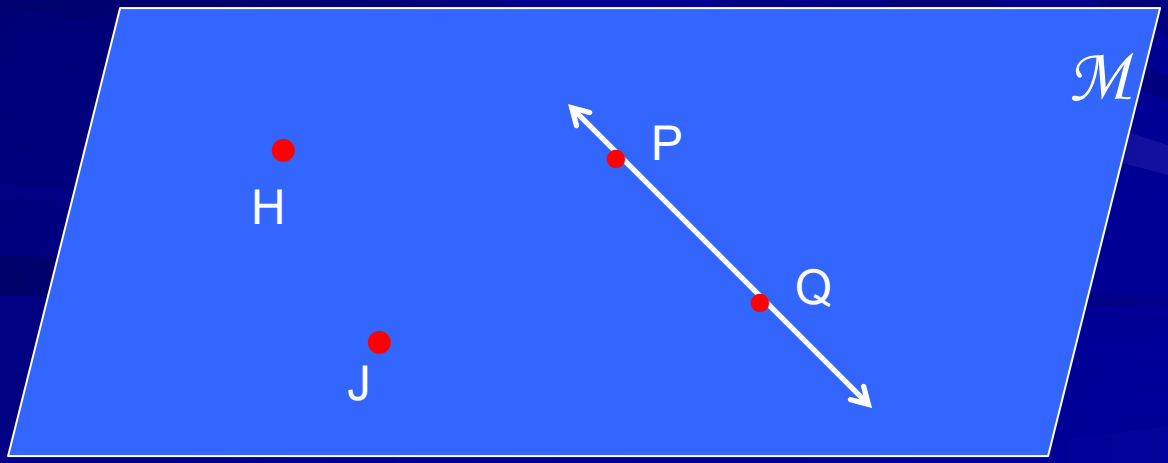
Collinear

- Points on the same line
  - co = together
  - linear = pertaining to a line
    - On the line together
- *Points A, B, & C are collinear*



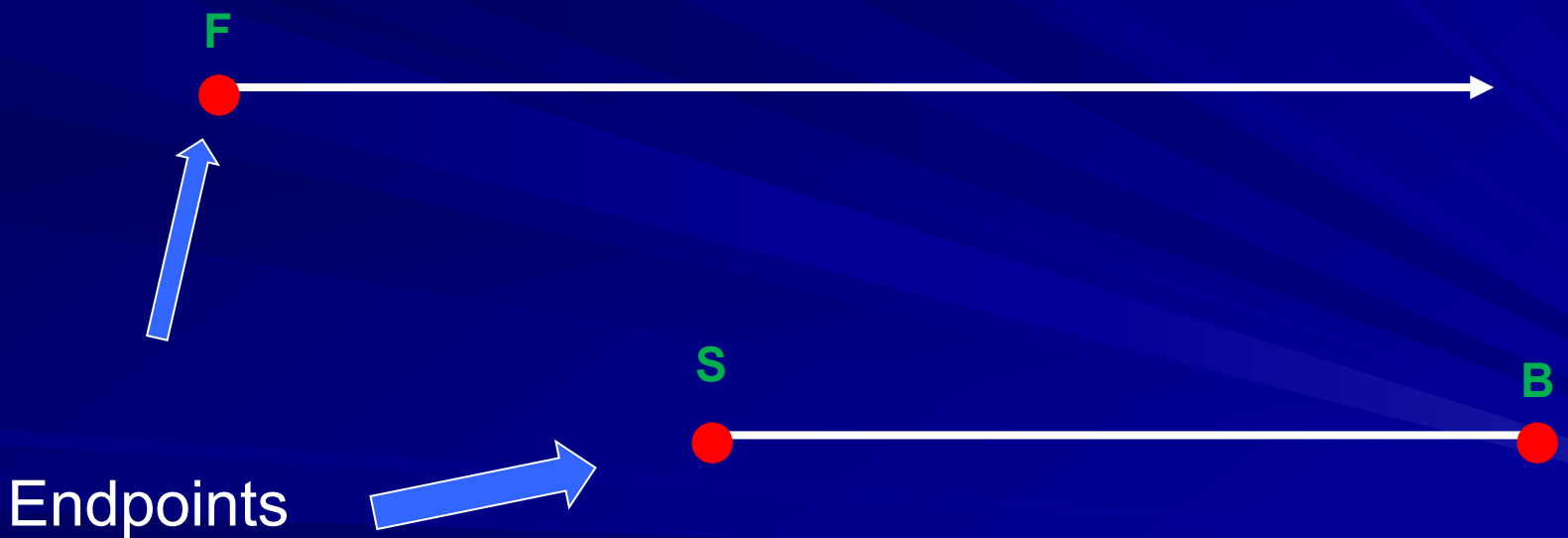
Coplanar

- On the same plane
  - co = together
  - planar = pertaining to a plane
    - On the plane together
- *Points H & J and Line PQ are coplanar on $\mathcal{M}$*



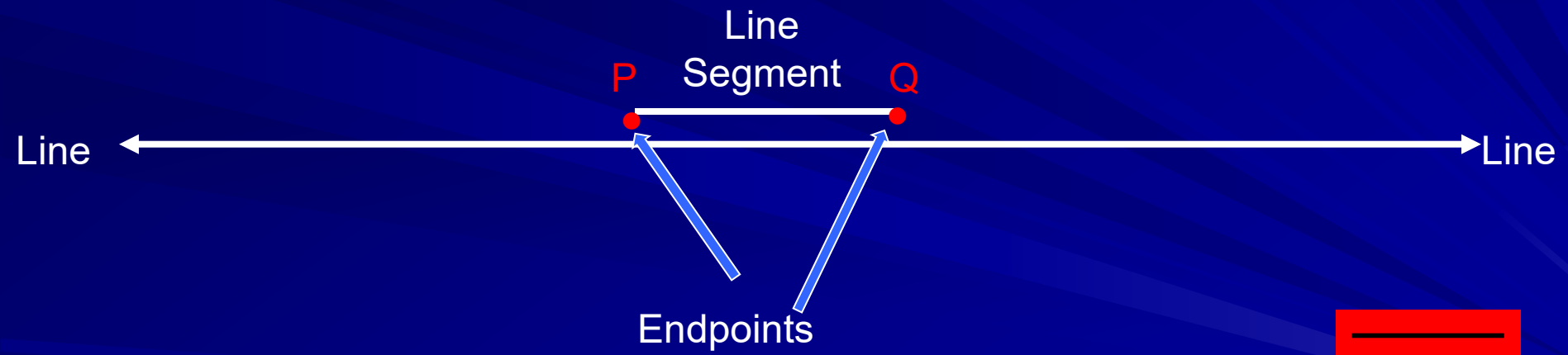
ENDPOINT

- An ENDPOINT is a *point* at the end of a ray or line segment. (a capital letter)



LINE SEGMENT

- A LINE SEGMENT is ***part*** of a ray or line.
- It has <u>two</u> endpoints

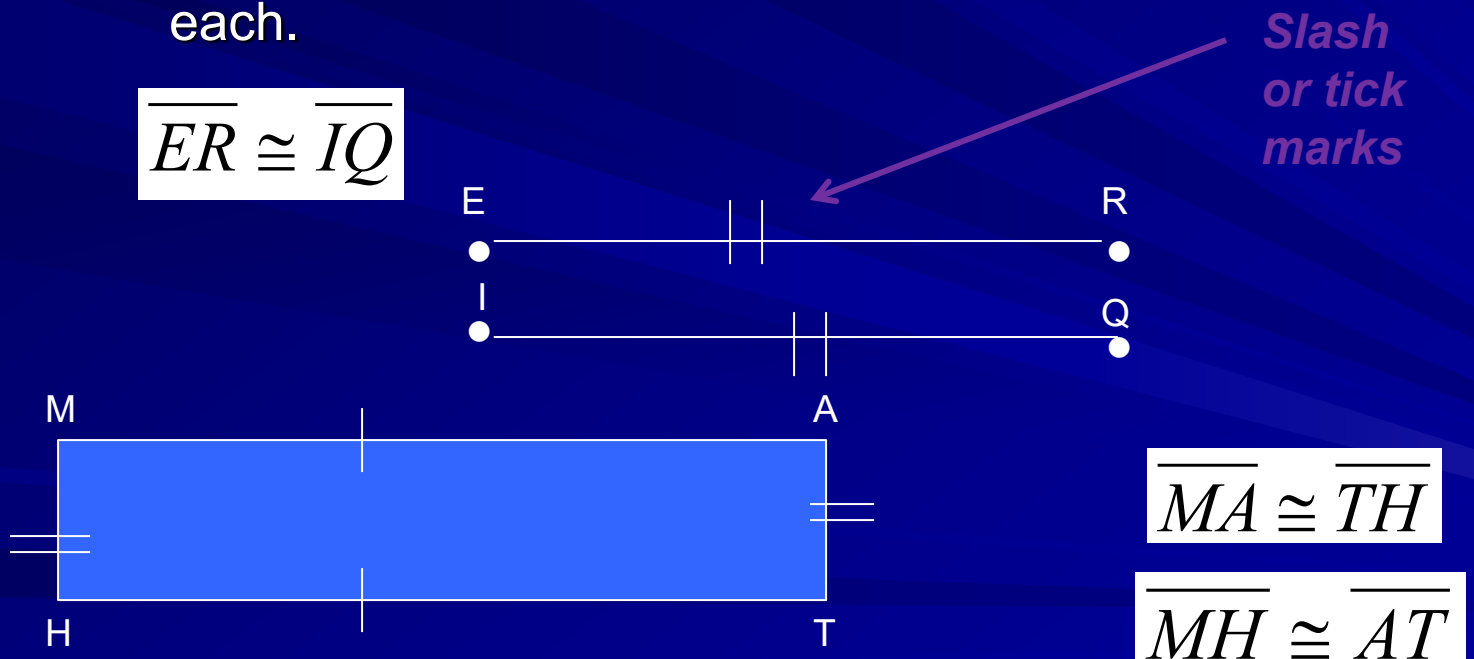


- Name a line segment by its endpoints $\overline{PQ}$

CONGRUENT ≅

- CONGRUENT means the ***same size and same shape***
- CONGRUENT LINE SEGMENTS means two line segments are the same size
  - Show congruent segments by making identical markings on each.

$\overline{ER} \cong \overline{IQ}$



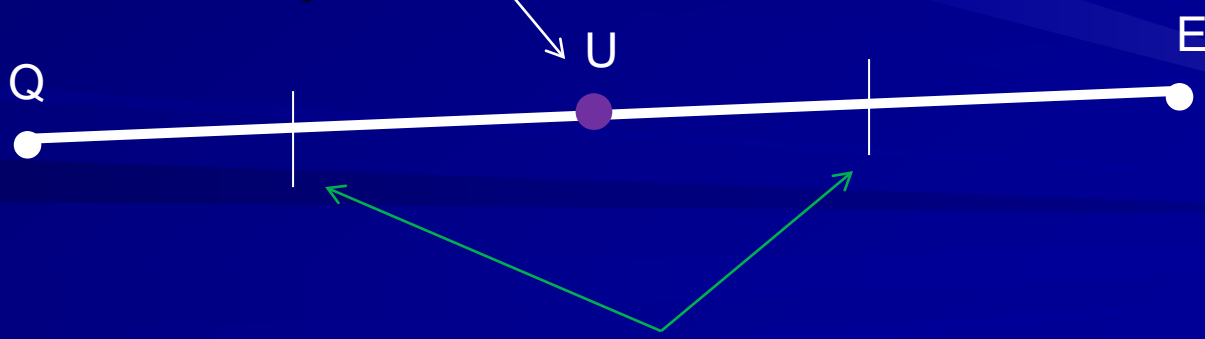
$\overline{MA} \cong \overline{TH}$

$\overline{MH} \cong \overline{AT}$

  - Parts with the *same amount* of markings are congruent

Midpoint

- Midpoint of a segment is the ***point*** on the segment that is the same distance from both endpoints
  - bisects the segment
  - divides the segment into two congruent segments
- Congruent markings on a segment indicate a point is a midpoint



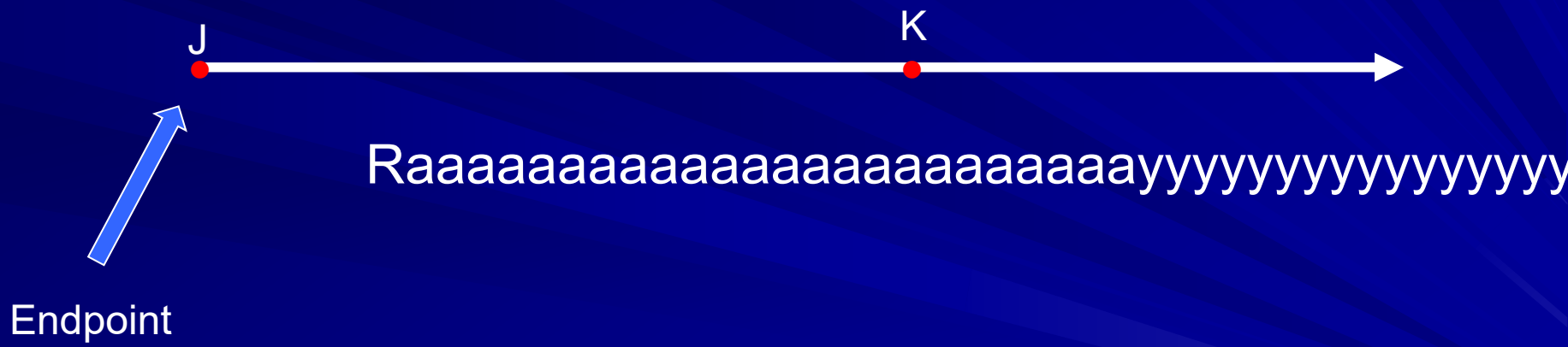
Midpoint of WHAT?

- Can a point have a midpoint?
  - a line?
  - a square?
  - a plane?

  - NO, only a segment is finite in length
  - There is NO midpoint to infinity

RAY

- A RAY is part of a line, but it has <u>one</u> endpoint and the other end continues infinitely.

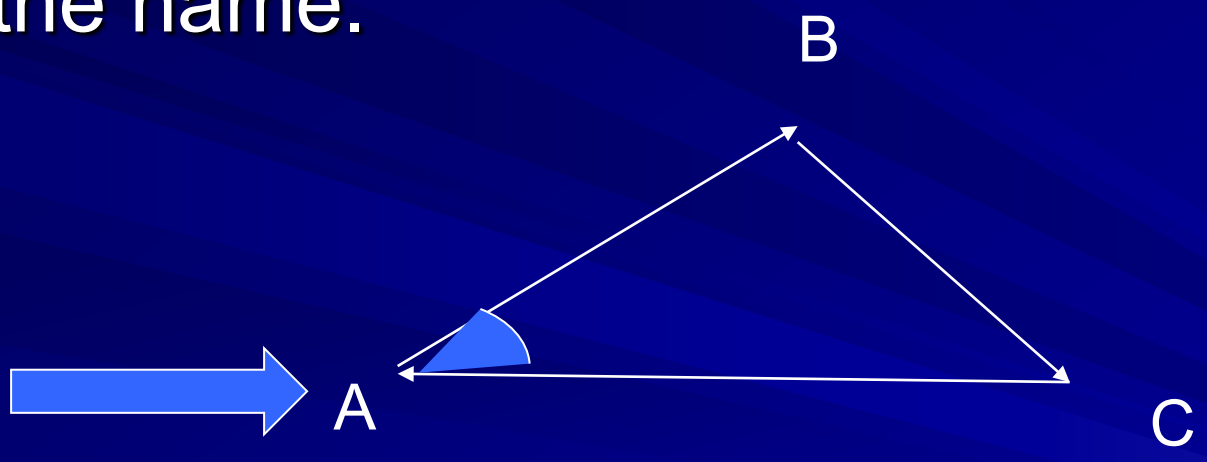


- Name a ray with its *endpoint first*, followed by another point on the ray.

$\overrightarrow{JK}$

ANGLES

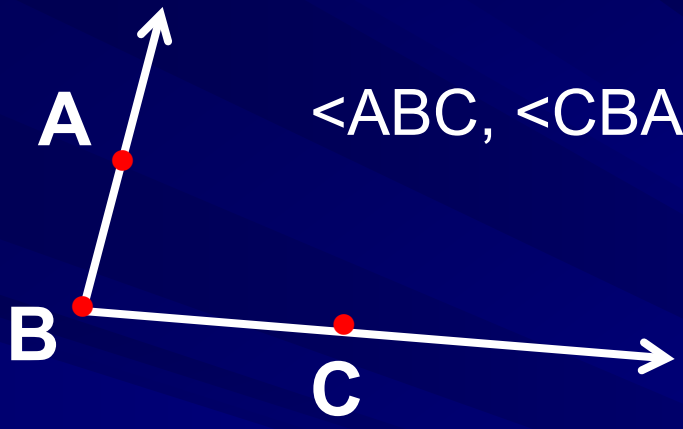
- When you *name* an angle. The vertex/angle point goes in the middle of the name.



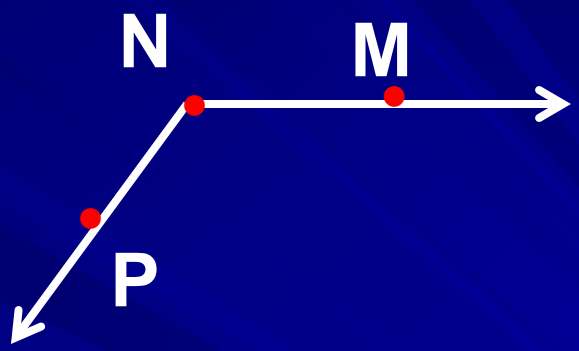
If I wanted to know the measurement of Angle A…I would ask:" What is the measurement for <B***A***C?"

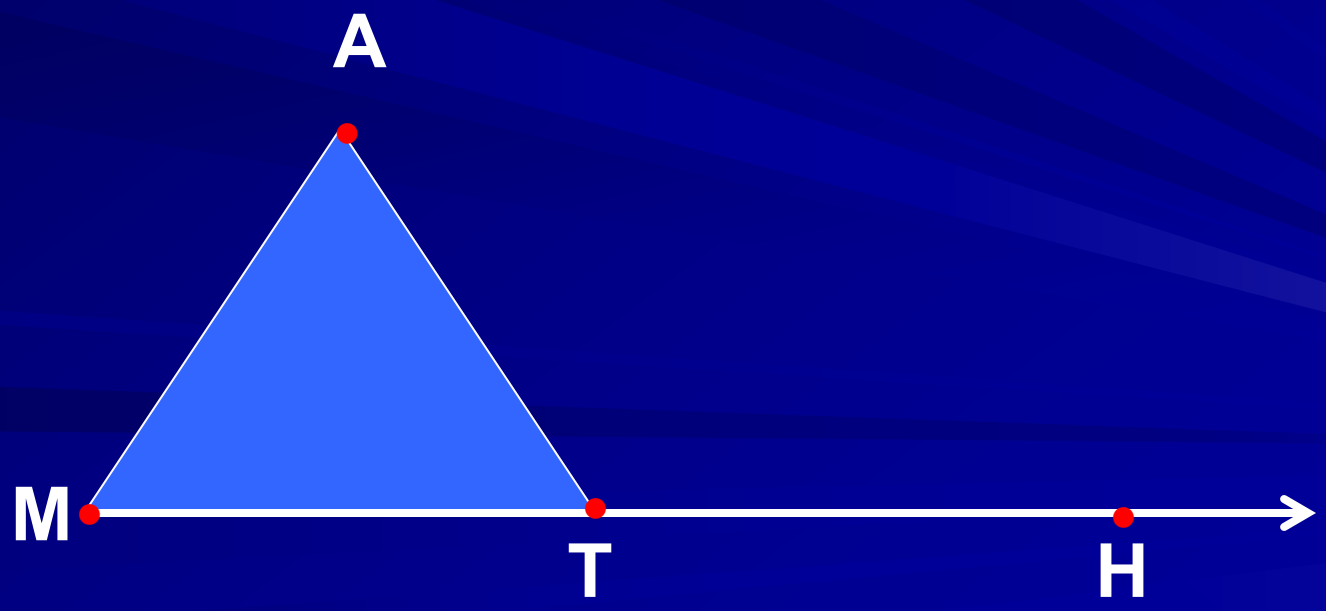
(Notice A is in the center)

Naming Angles



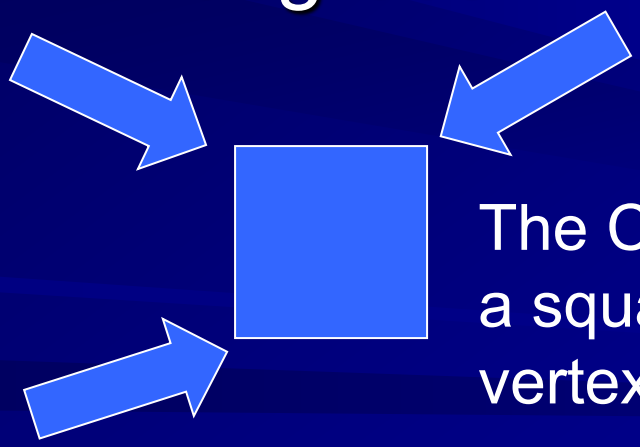
<ABC, <CBA, <B



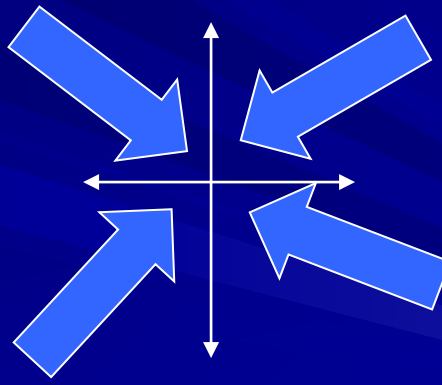


VERTEX

- A VERTEX is a fancy name for “angle”
- Two rays or lines that have the same endpoint make a VERTEX/angle
- VERTEX/angles are measured in “degrees”



The Corners of a square are its vertex/angles



When two lines cross, they make vertex/angles

VERTICAL LINE

- A VERTICAL LINE goes up & down

The candy bars are vertical

HORIZONTAL LINE

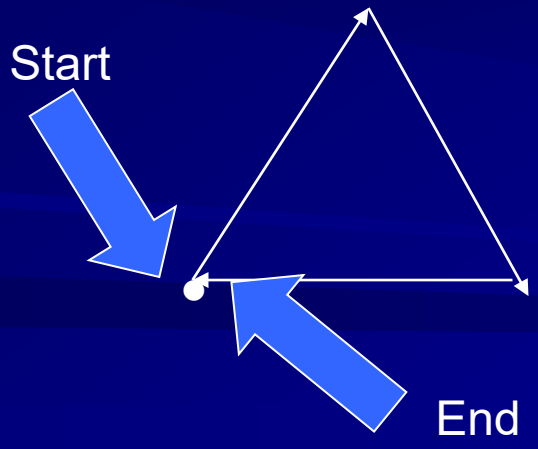
- A HORIZONTAL LINE goes “across” (left and right)

The candy bars are Horizontal

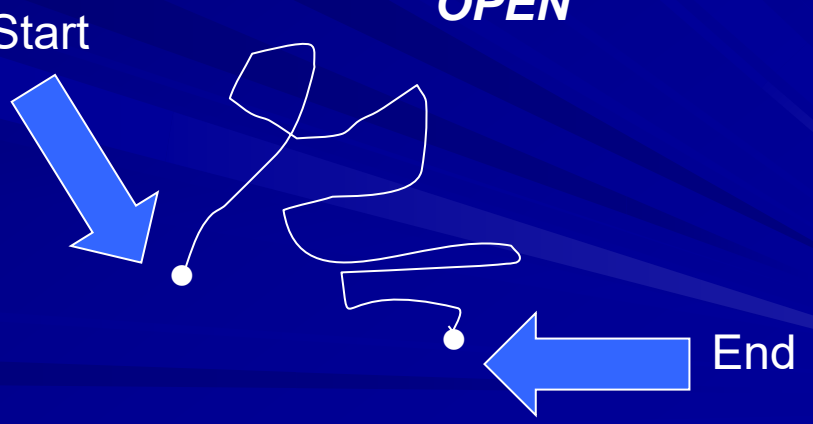
OPEN & CLOSED FIGURES

- A CLOSED FIGURE/SHAPE starts and ends at the same point.
- An OPEN FIGURE/SHAPE does NOT start and end at the same point.

CLOSED



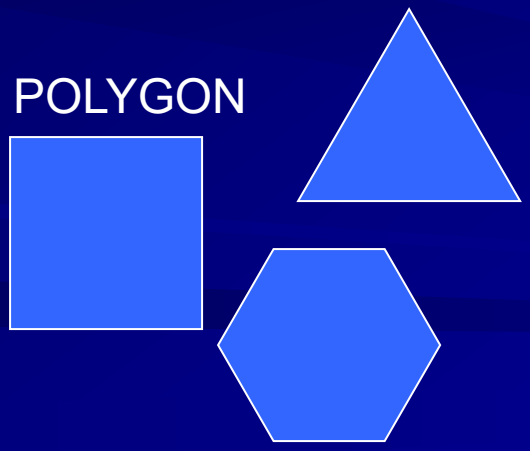
OPEN



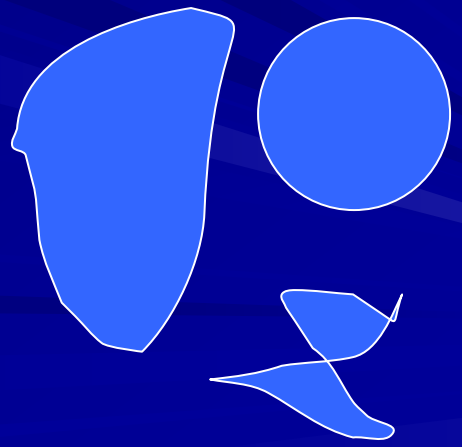
POLYGON

- A POLYGON is a “closed” shape
- A POLYGON is made up of line segments that do not cross.
- The number of sides gives a POLYGON its name

POLYGON

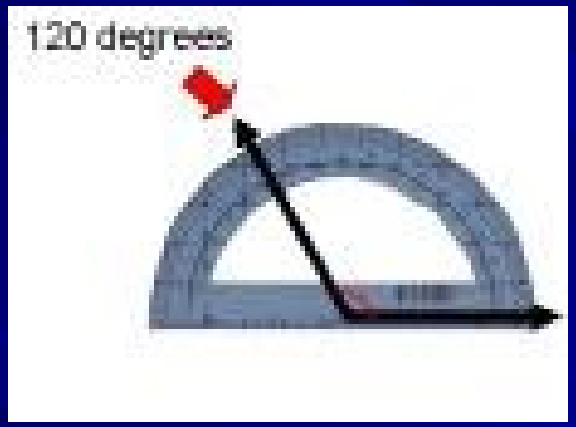


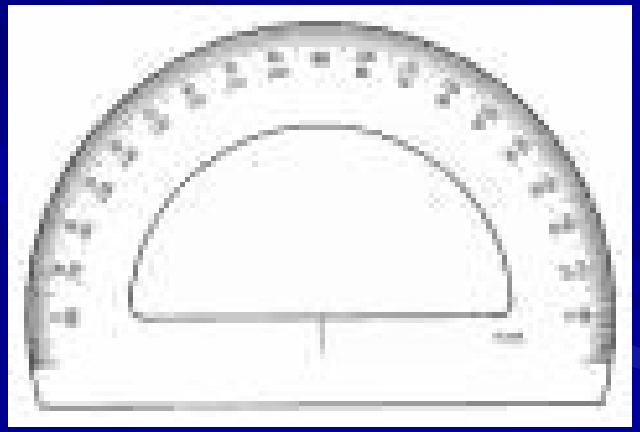
NOT POLYGON



PROTRACTOR

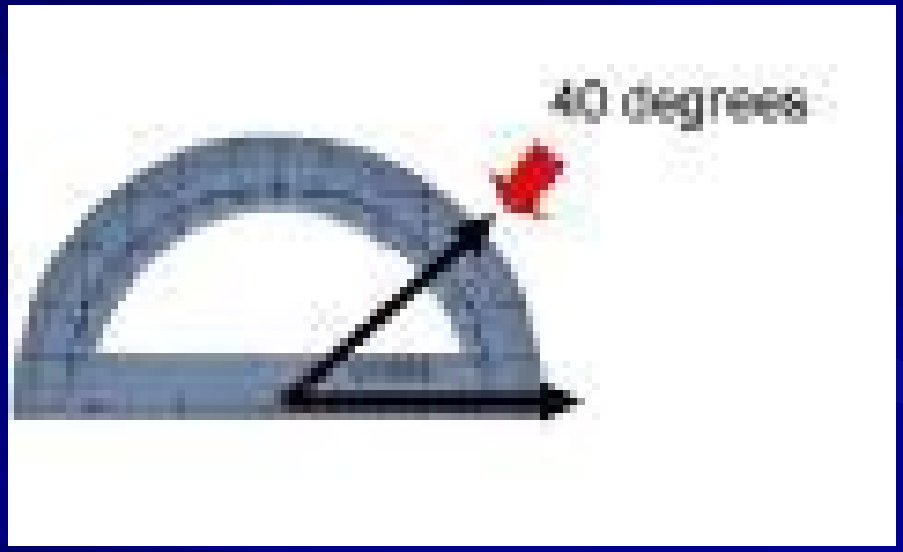
- We use a PROTRACTOR to measure vertex/angles in degrees





4 TYPES OF ANGLES

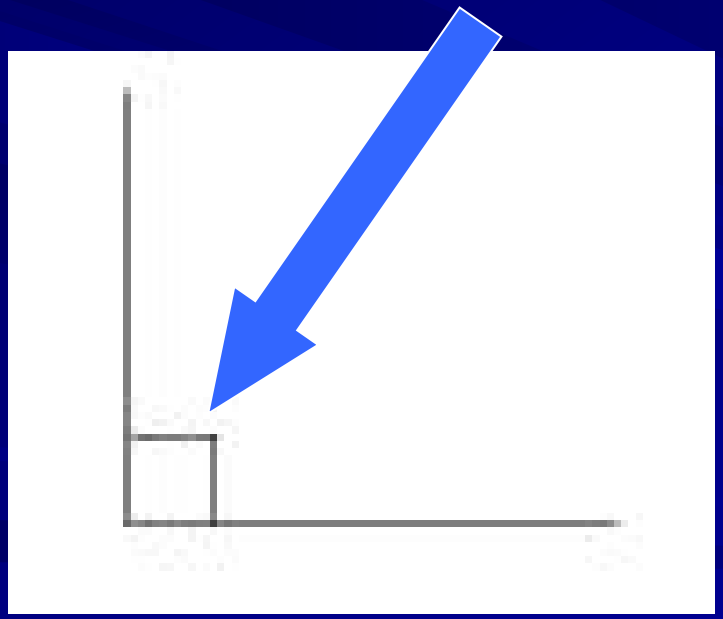
- ACUTE ANGLES are less than 90°

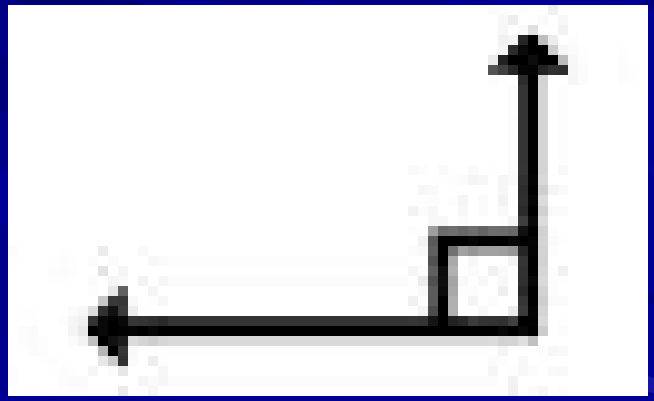


4 TYPES OF ANGLES

- RIGHT ANGLES measure exactly 90 °

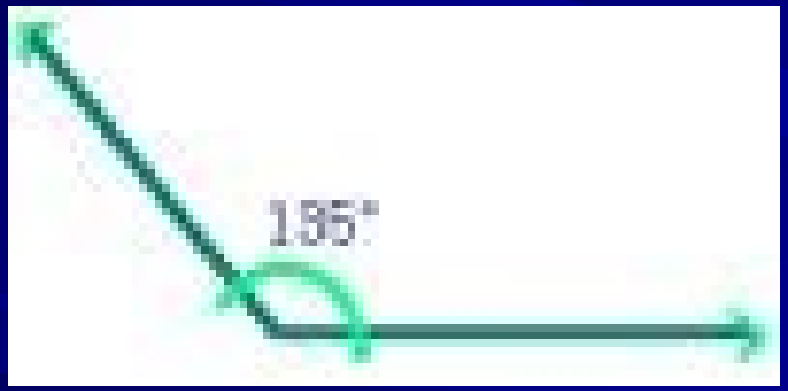
The “square” symbol means 90’

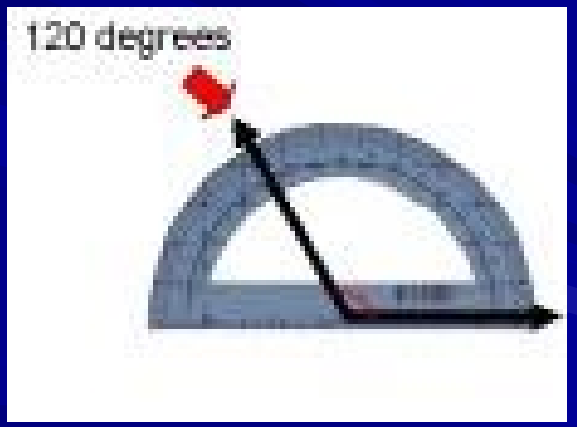




4 TYPES OF ANGLES

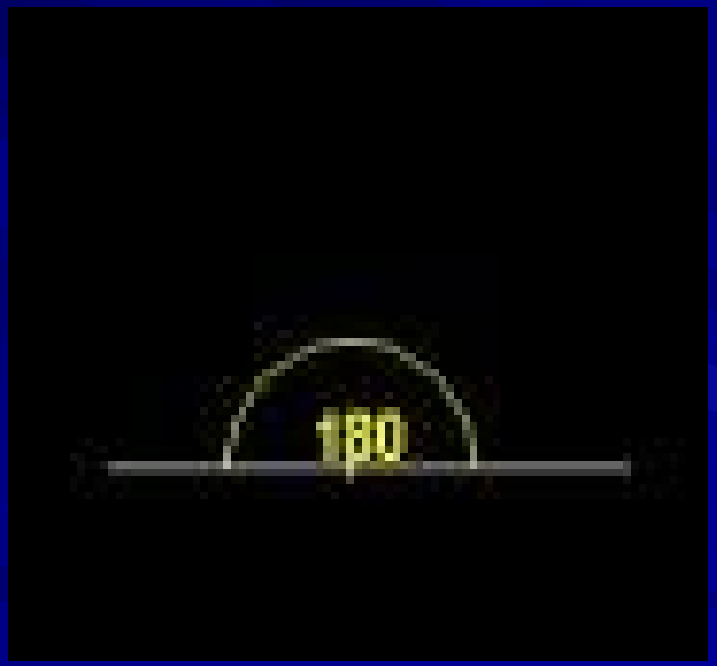
- OBTUES ANGLES are greater than 90 ° but less than 180 °





4 TYPES OF ANGLES

- STRAIGHT ANGLE is exactly 180 °
  - aka: a line



The End

Once you study all the fancy words/vocabulary, Geometry is very easy to understand…so STUDY!

You are Learning a new Language.