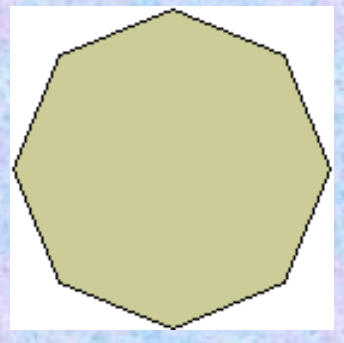
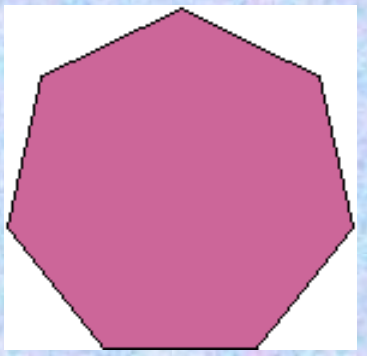
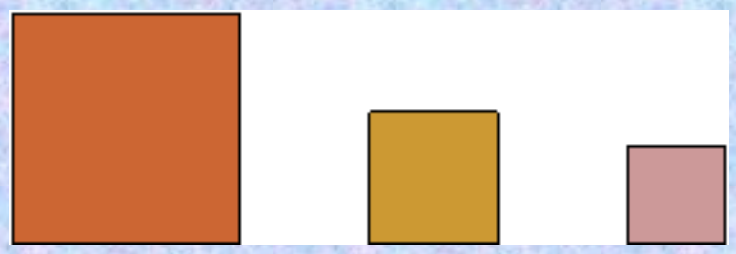


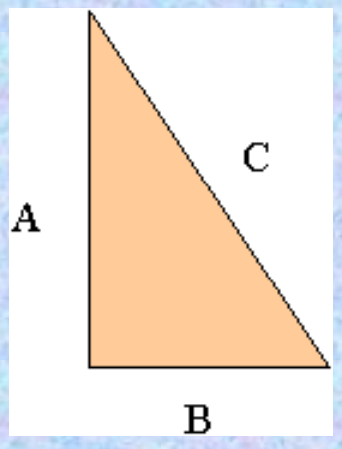


STUDY GUIDE FOR GEOMETRY!

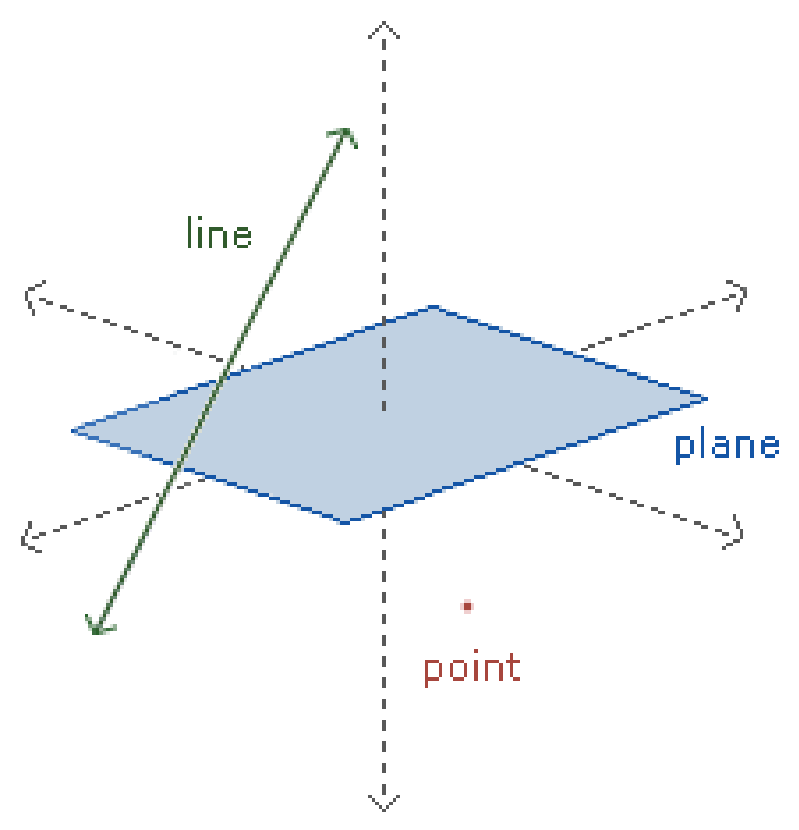
FOR: MRS. GOODHUE'S CLASS

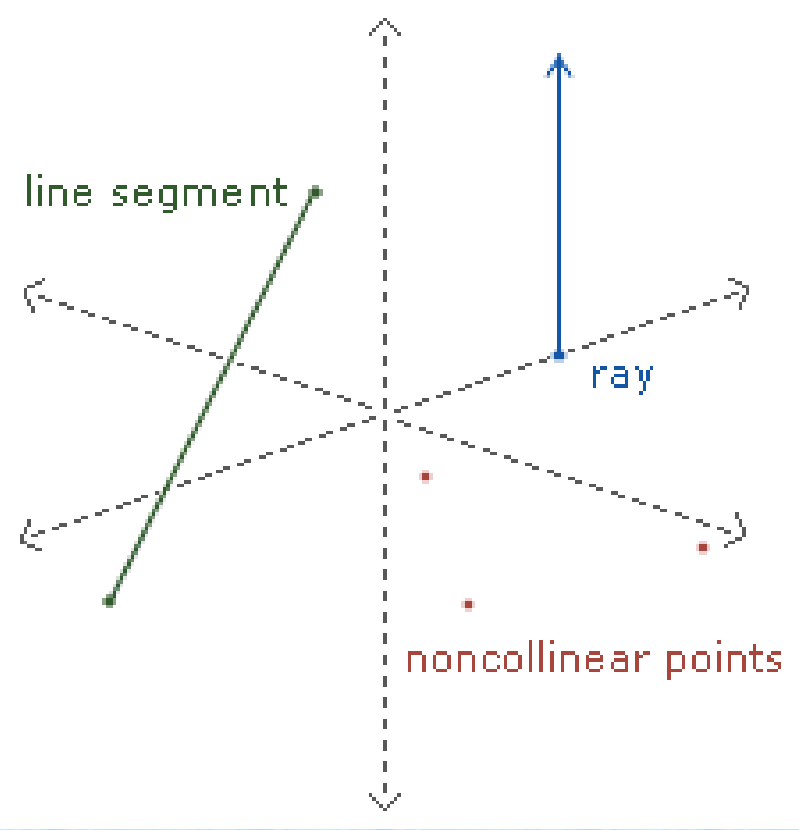
BY: MRS. CAMUTO



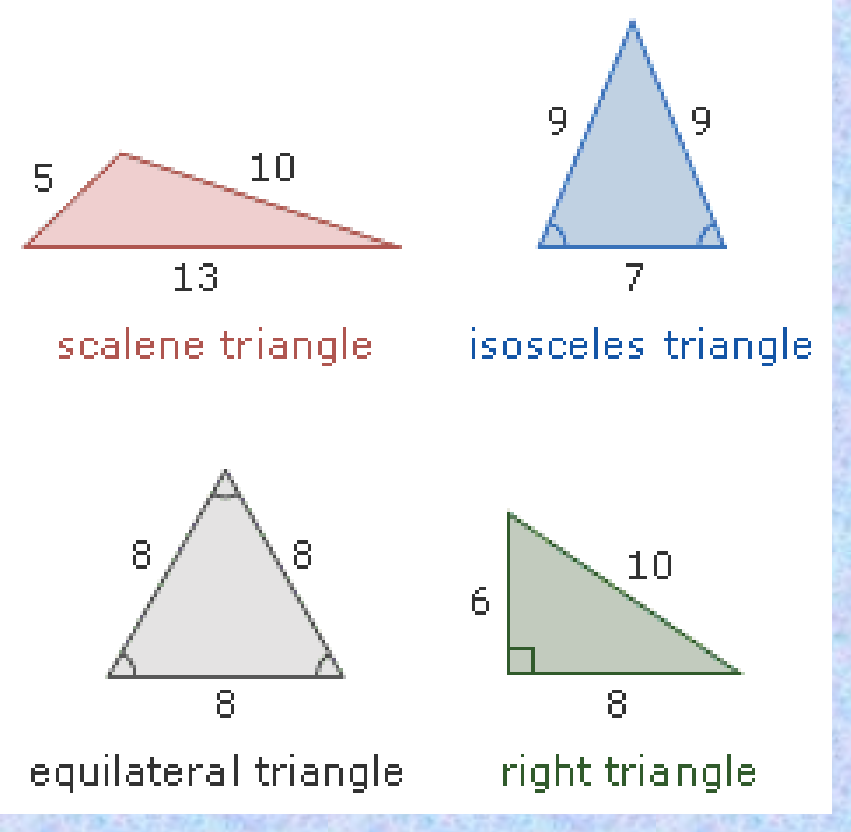


WHAT ARE THE TYPES OF LINES?





TYPES OF TRIANGLES



- **SCALENE –**

A triangle where none of the sides are equal.

- **ISOSCELES –**

A triangle where TWO sides are equal.

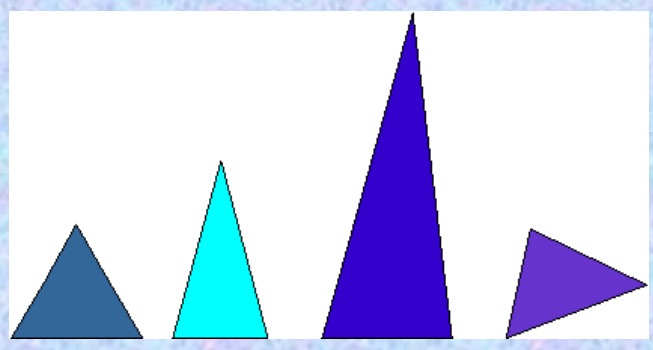
- **EQUILATERAL –**

A triangle where **ALL THREE sides are equal**.

- **RIGHT –**

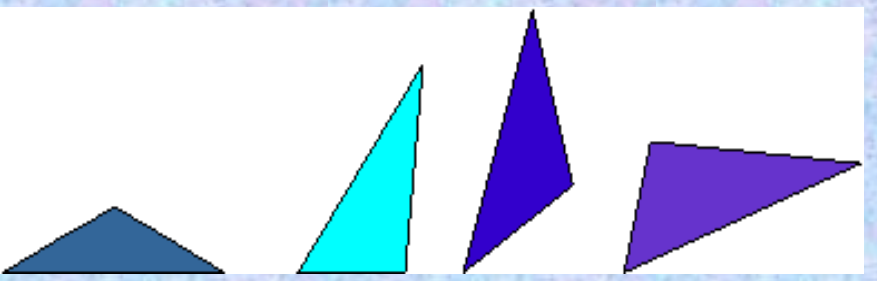
A triangle which has **ONE right angle**.

TYPES OF TRIANGLES ; BY ANGLE



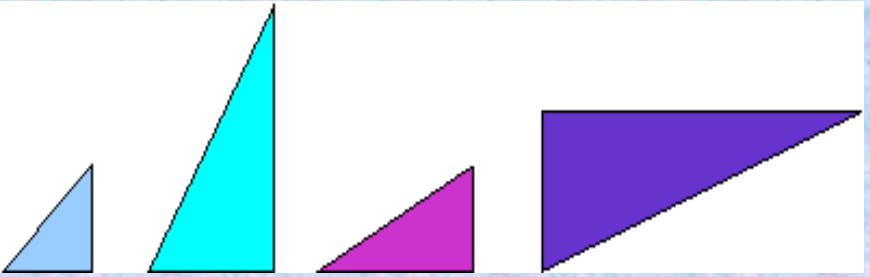
- **Acute Triangle**

  A triangle having three acute angles.



- **Obtuse Triangle**

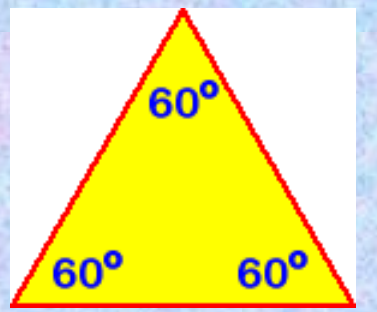
  A triangle having an obtuse angle. One of the angles of the triangle measures more than 90 degrees



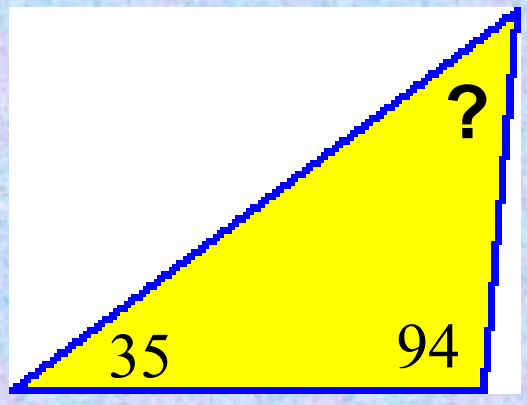
- **Right Triangle**

  A triangle having a right angle. One of the angles of the triangle measures 90 degrees.

HOW TO FIND THE MEASURE OF A THIRD ANGLE IN A TRIANGLE!



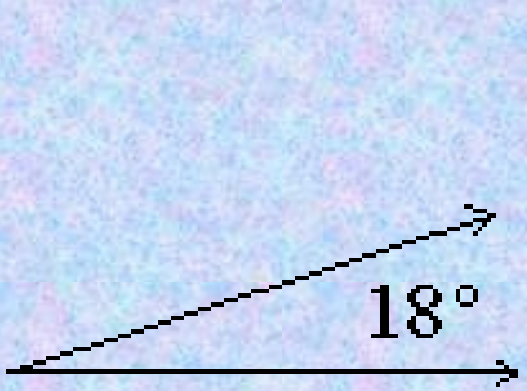
- **The sum of the measures of the interior angles of a triangle is 180 degrees.**

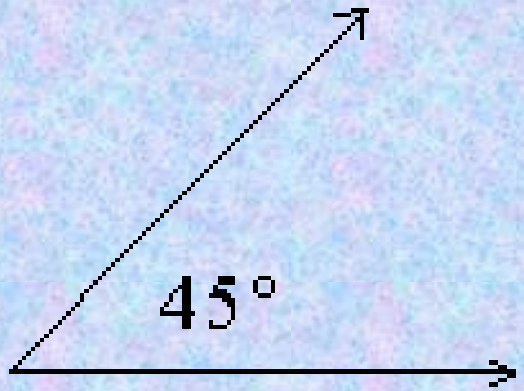


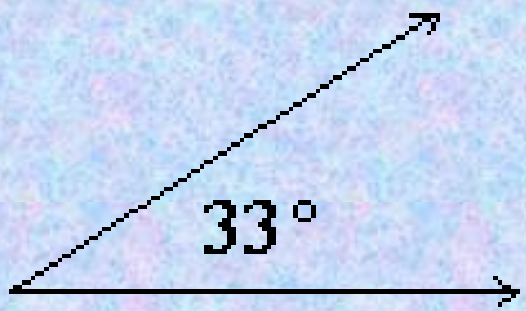
Can you find the measure of the third angle?

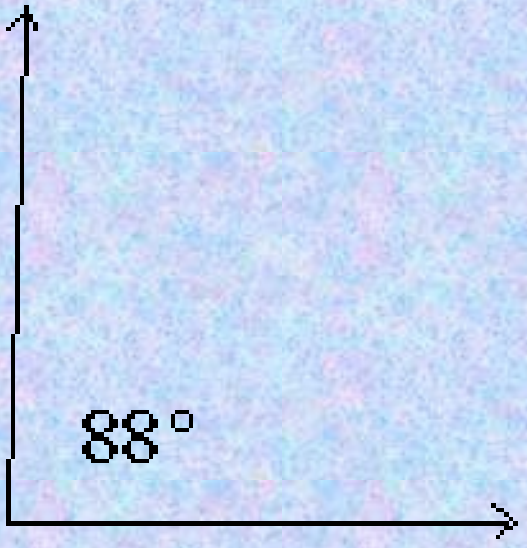
Acute Angles

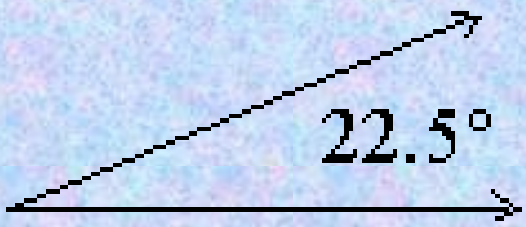
- An acute angle is an angle measuring between 0 and 90 degrees.

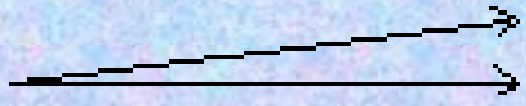






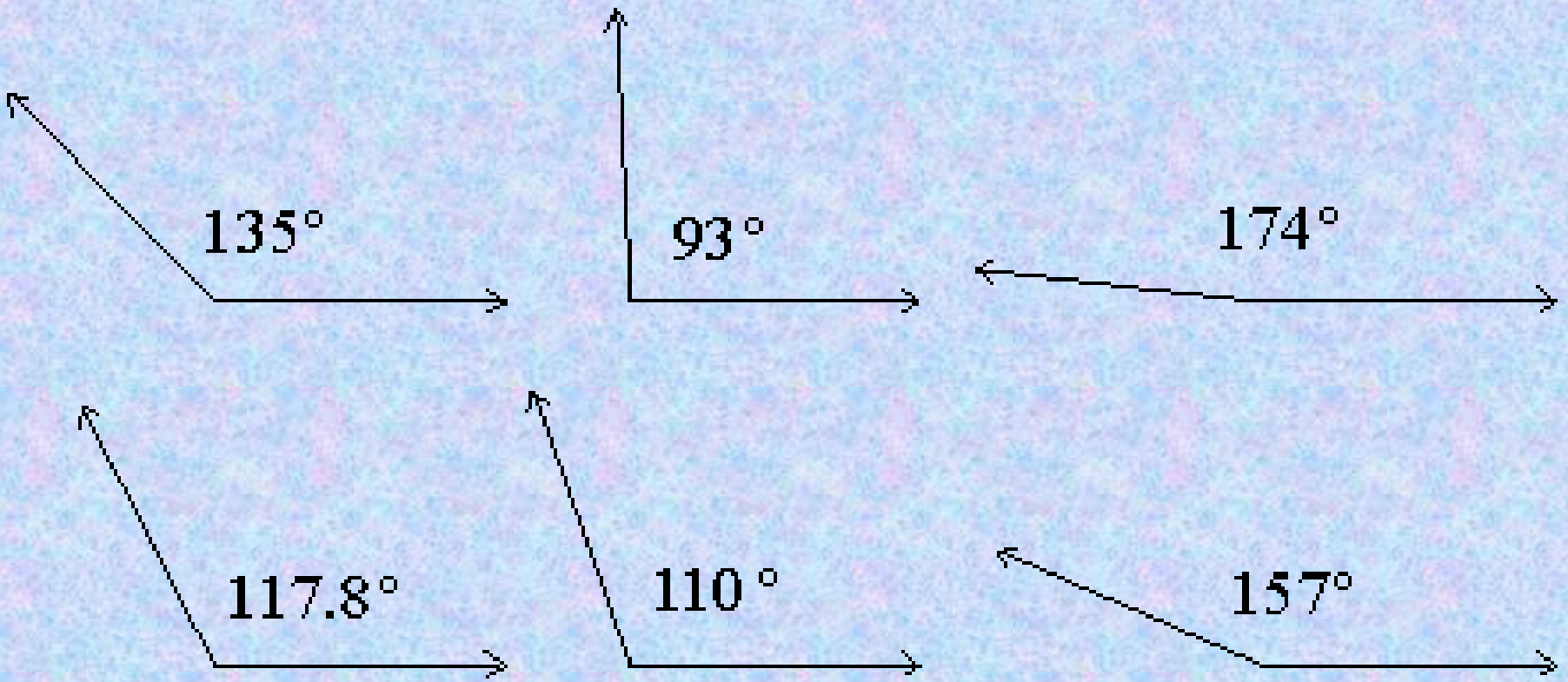






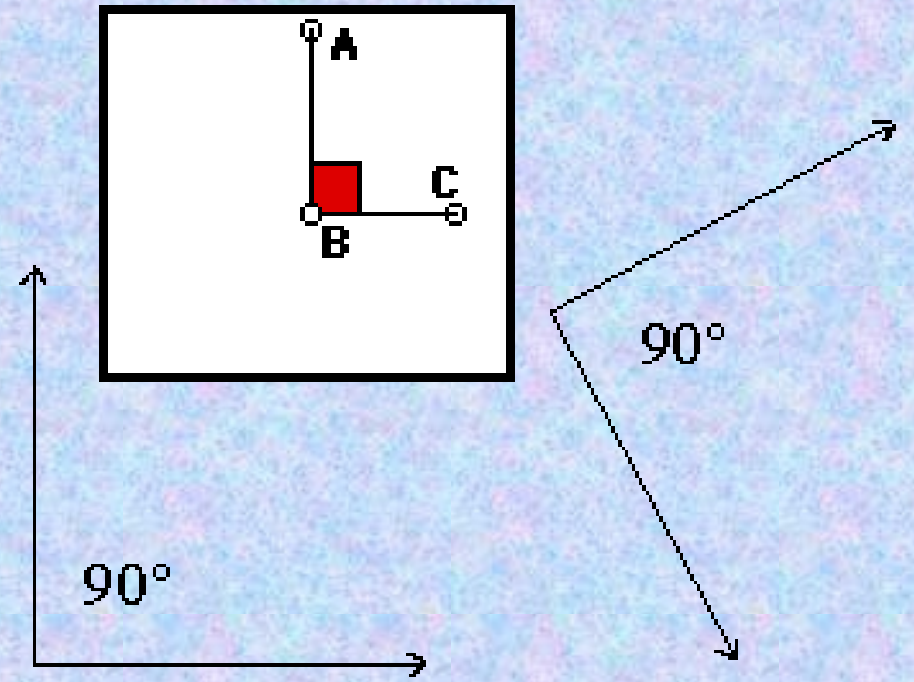
Obtuse Angles

An obtuse angle is an angle measuring between 90 and 180 degrees.



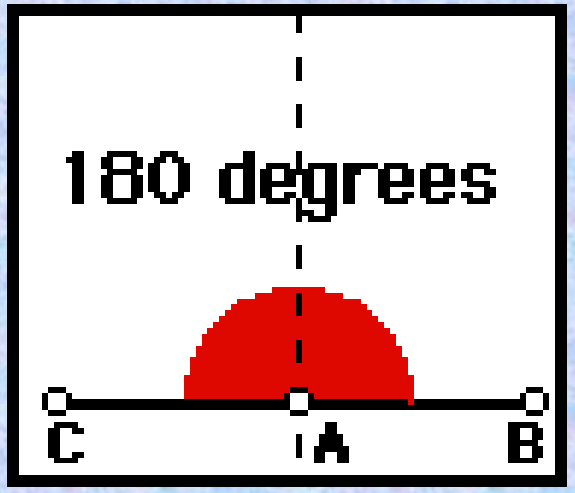
Right Angles

- A right angle is an angle measuring 90 degrees.



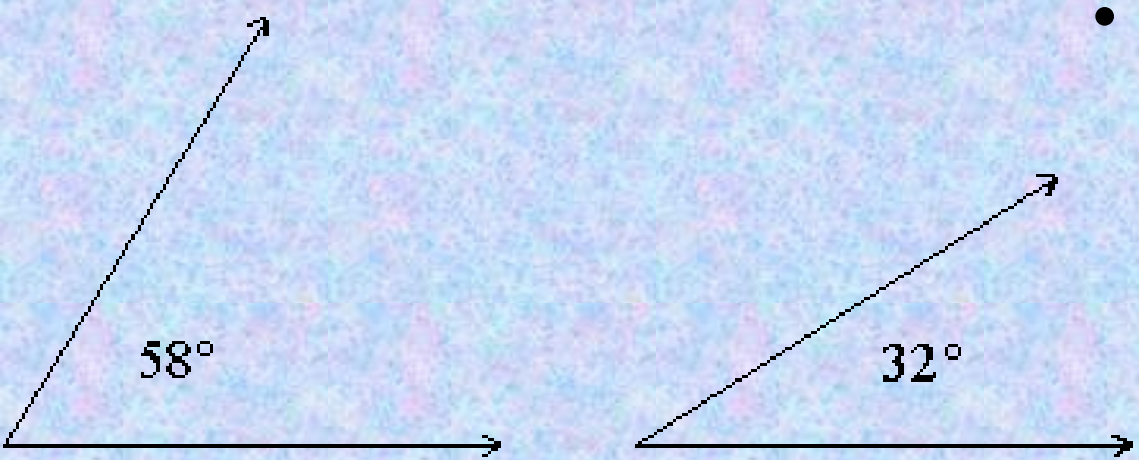
Straight Angles

•A straight angle is an angle that measures 180 degrees.



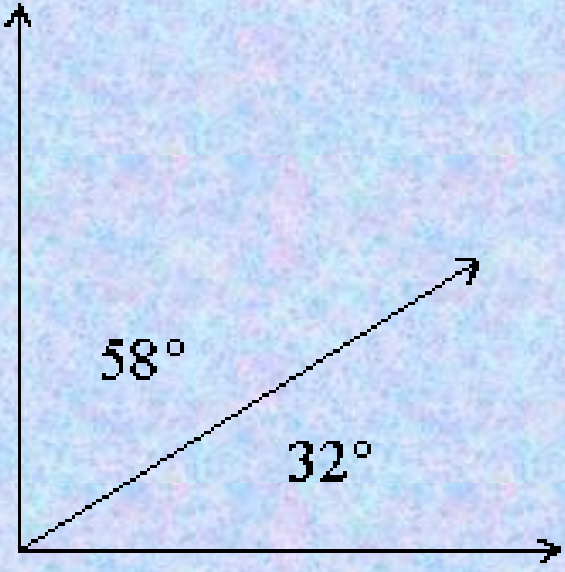
Complementary Angles

These two angles are complementary.



- Two angles are called complementary angles if the **sum of their degree measurements equals 90 degrees.**

Note –
These two angles can be "pasted" together to form a right angle!

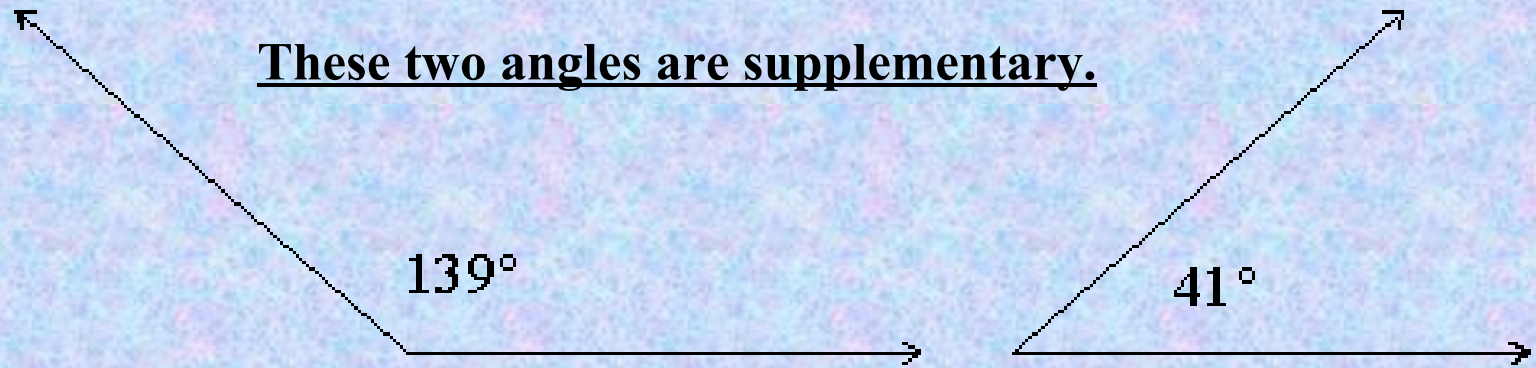


- One of the complementary angles is said to be the **complement of the other.**

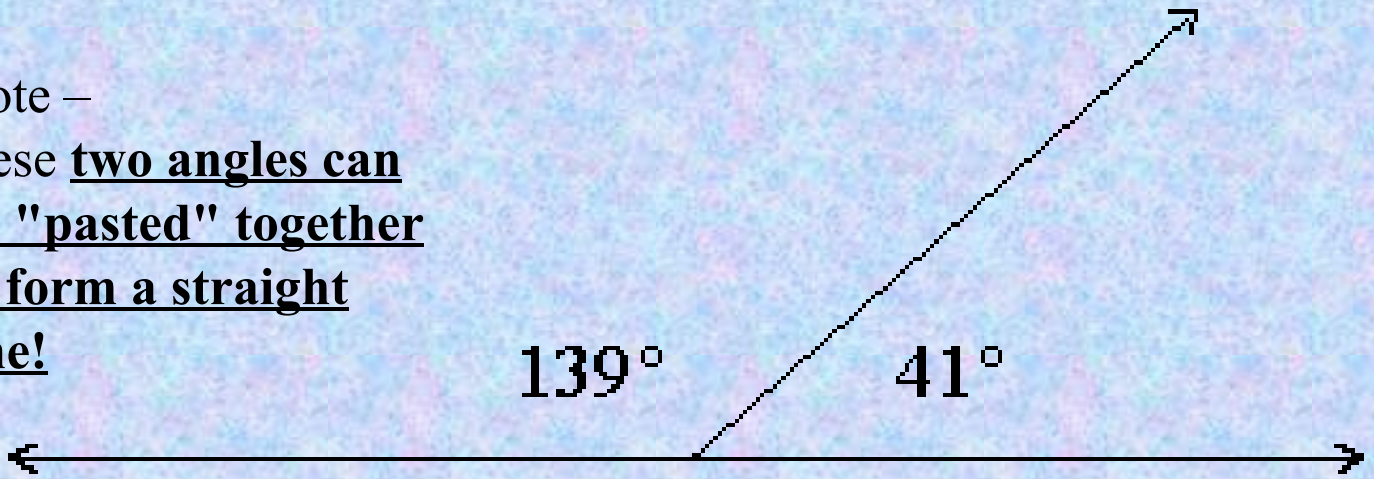
Supplementary Angles

- Two angles are called supplementary angles if the sum of their degree measurements equals 180 degrees.
- One of the supplementary angles is said to be the supplement of the other.

These two angles are supplementary.

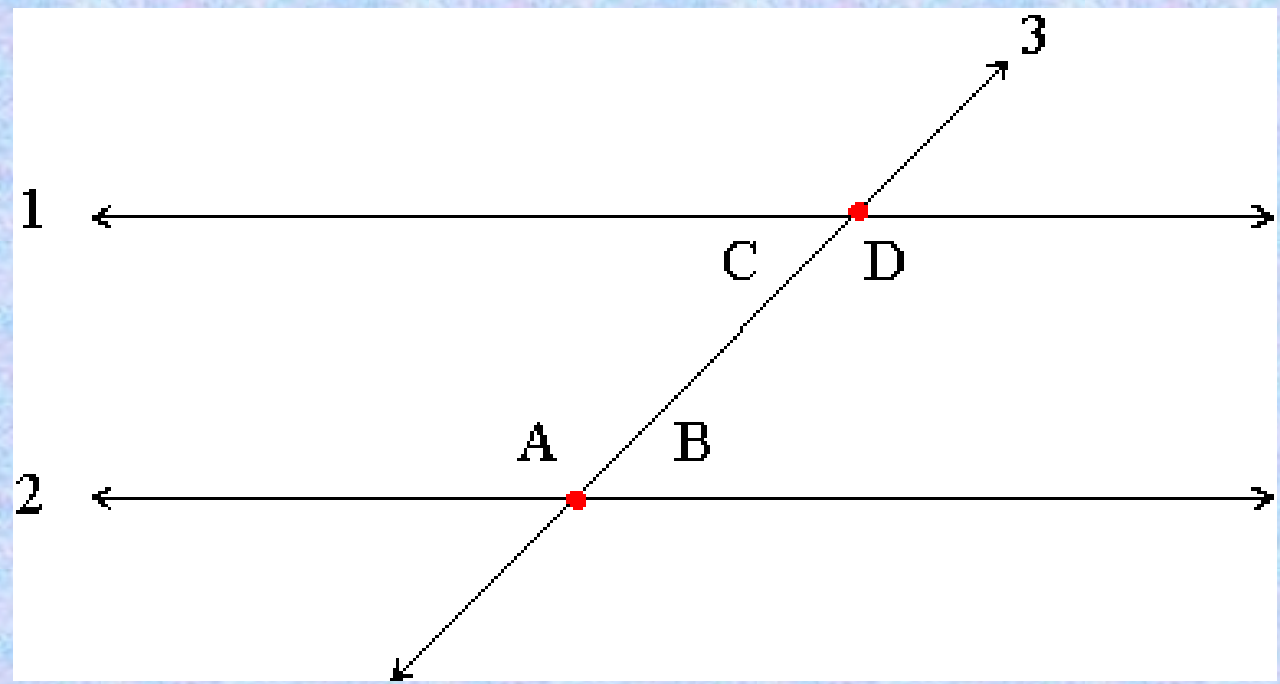


Note –
these **two angles can be "pasted" together to form a straight line!**



Alternate Interior Angles

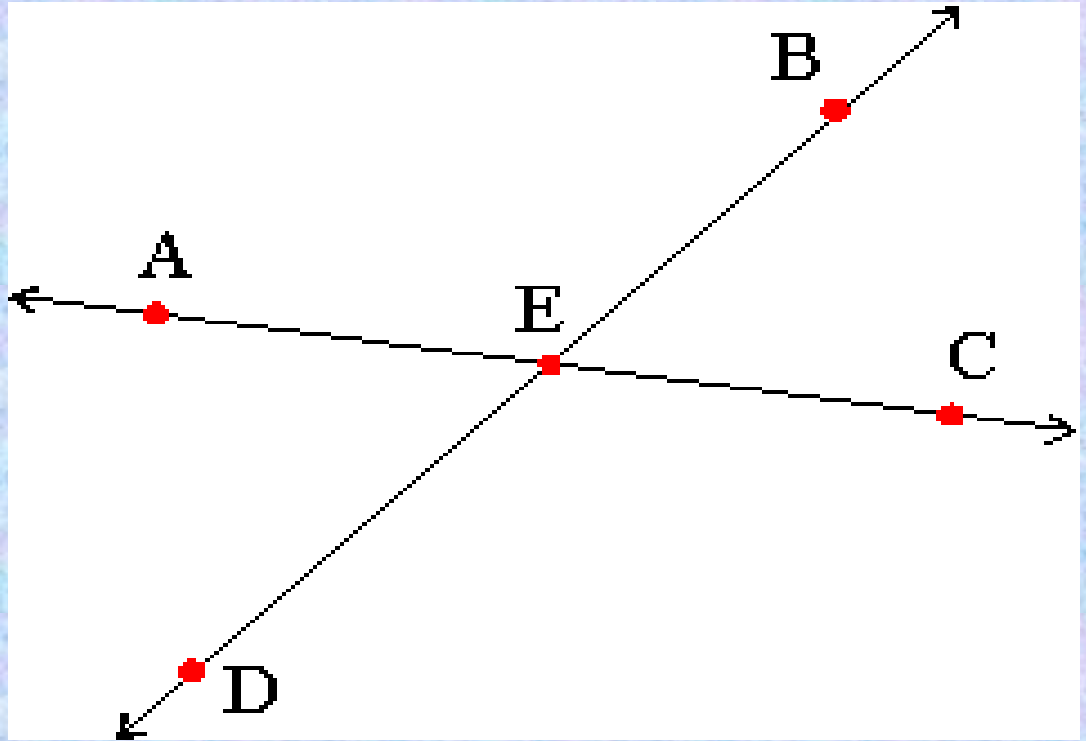
- Parallel lines 1 and 2 are both intersected by a third line, line 3.
- **Angle A and Angle D are called alternate interior angles**.
- **Angle B and Angle C** are also alternate interior angles.
- Alternate interior angles have the **same degree measurement.**



Vertical Angles

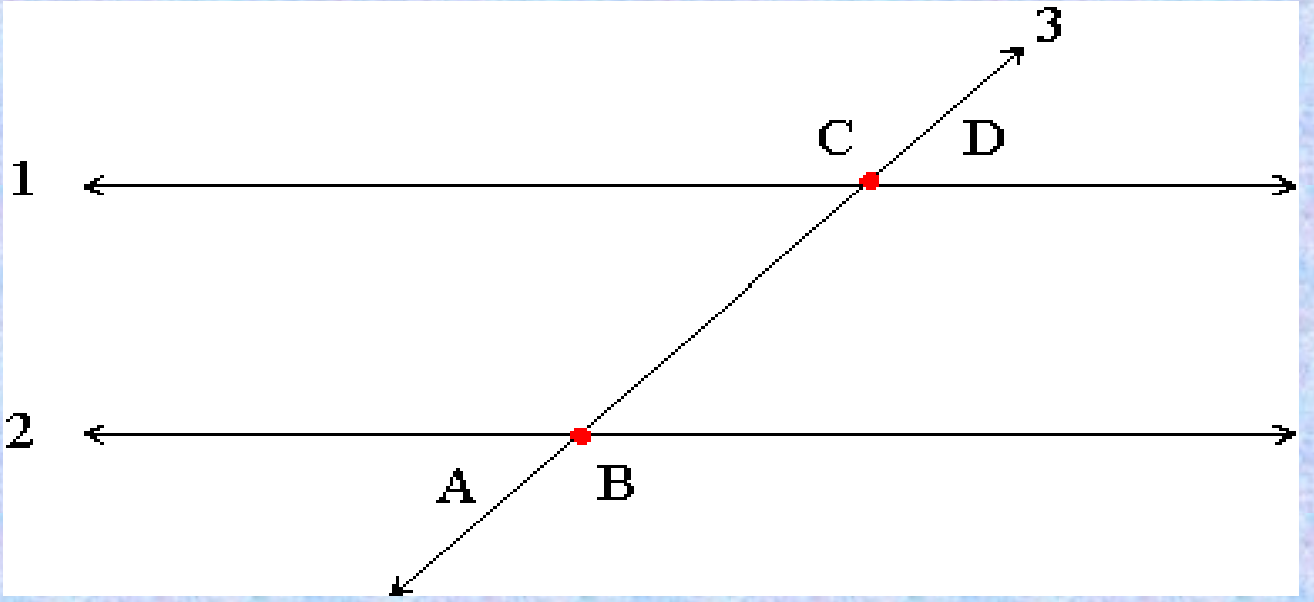
- When any two lines meet, such as in the diagram below, angle AEB and angle DEC are called vertical angles.
- Angle BEC and angle AED are also vertical angles.

- Vertical angles have the same degree measurement.



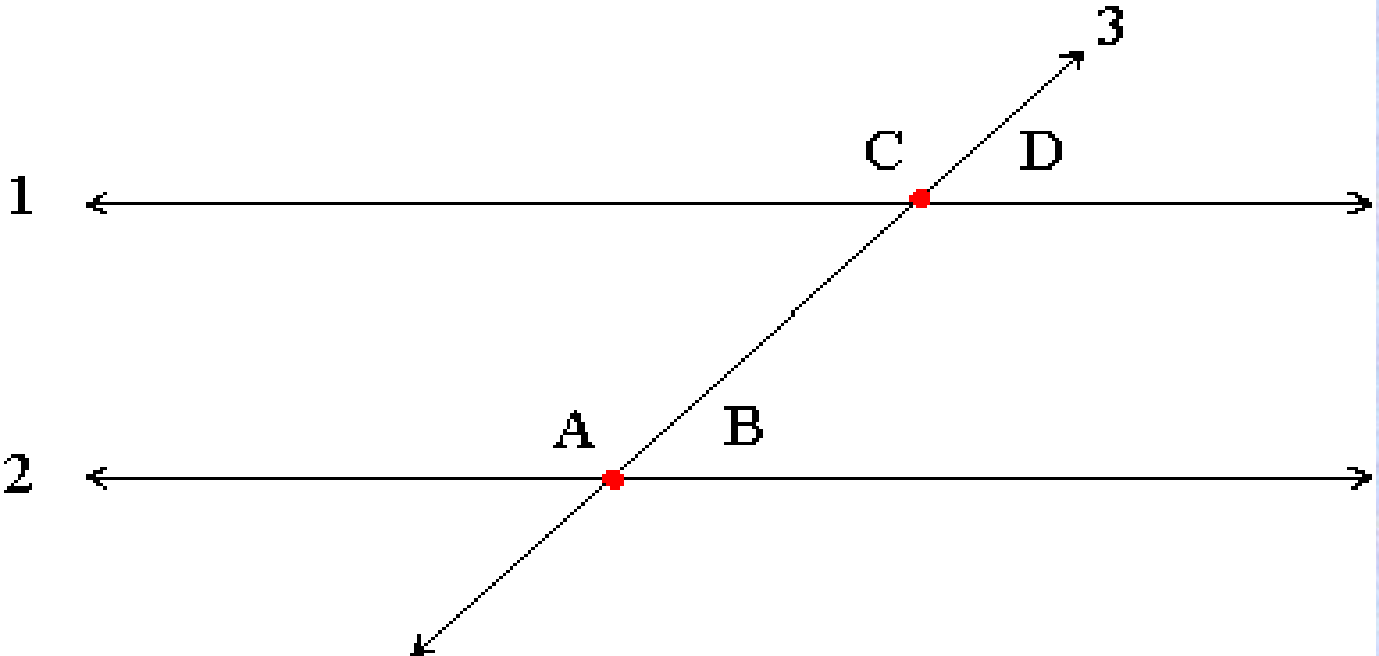
Alternate Exterior Angles

- Parallel lines 1 and 2,are intersected by a third line, line 3.
- Angle A and Angle D are called **alternate exterior angles**.
- Angle B and Angle C are also **alternate exterior angles**.
- Alternate exterior angles have the **same degree measurement**.



Corresponding Angles

- Parallel lines 1 and 2, are both intersected by a third line, line.
- Angle A and Angle C are called **corresponding angles.**
- Angle B and Angle D are also **corresponding angles.**
- Corresponding angles have the **same degree measurement**.

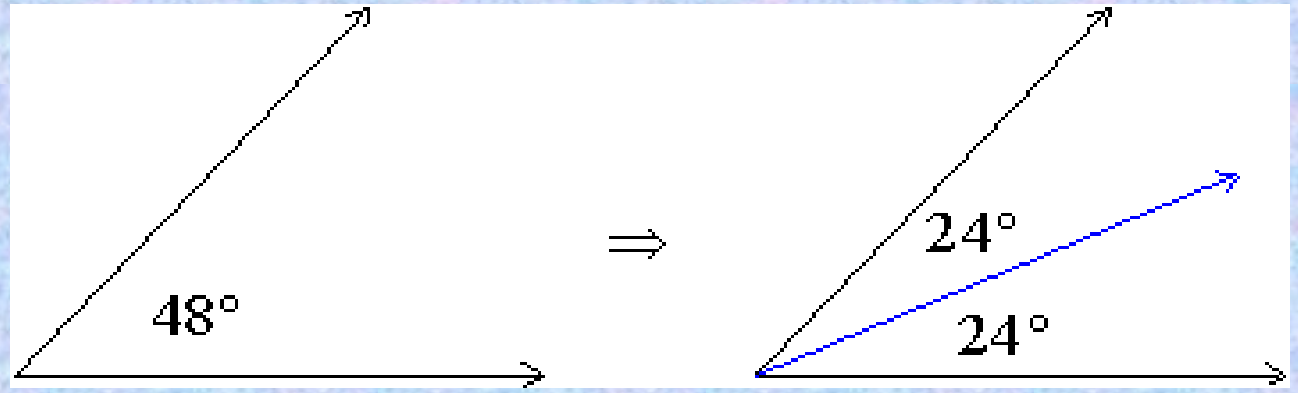


Angle Bisector

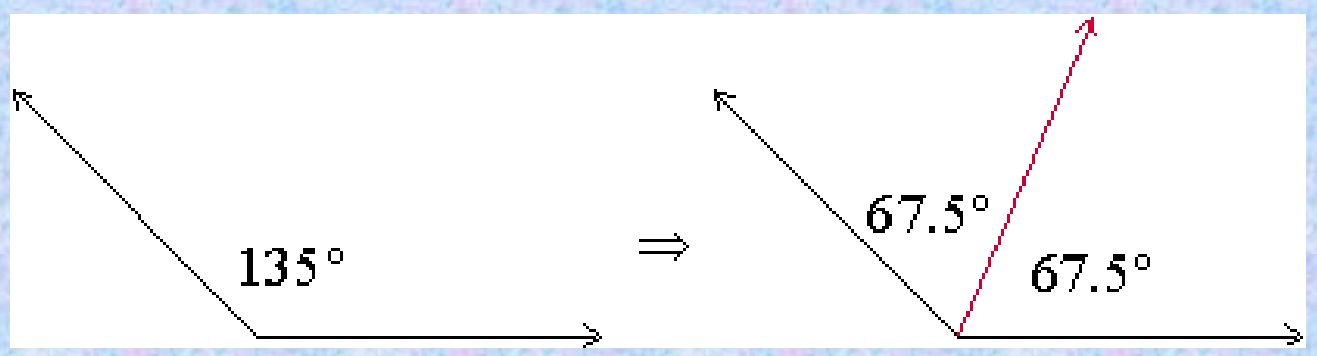
- An **angle bisector** is a ray that **divides an angle into two equal angles.**

•Example:

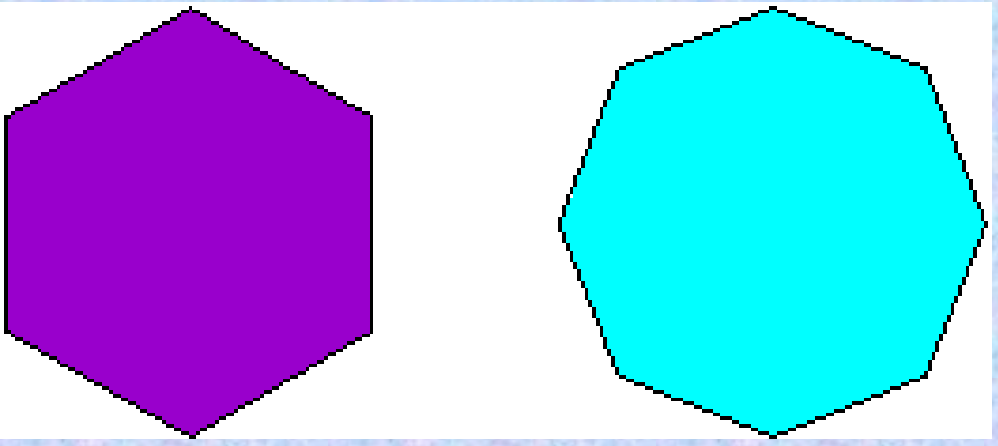
•The blue ray on the right is the angle bisector of the angle on the left -



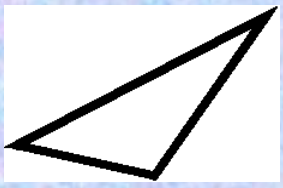
The red ray on the right is the angle bisector of the angle on the left -



REGULAR POLYGONS!



- These can be ANY numbered sided figures.
- ALL SIDES and ANGLES are EQUAL!

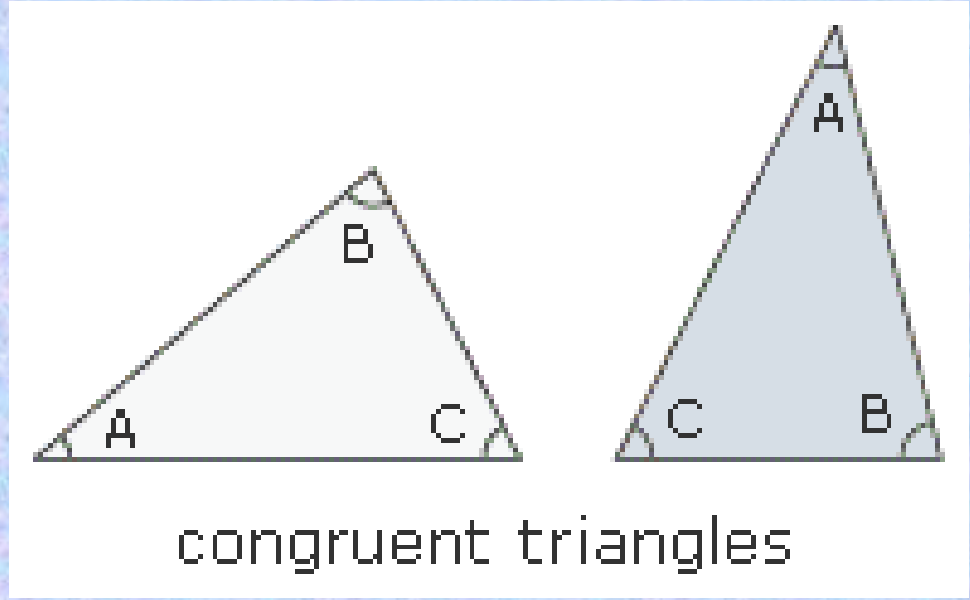


CONGRUENT!

- **CONGRUENT –**

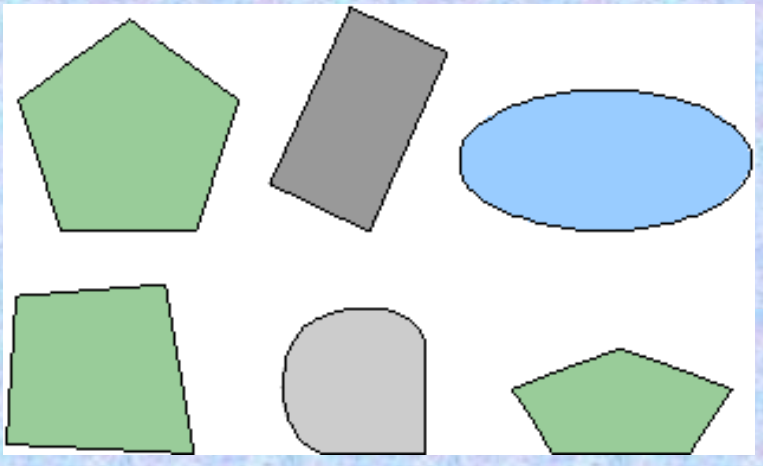
  Means the same thing as

  EQUAL!



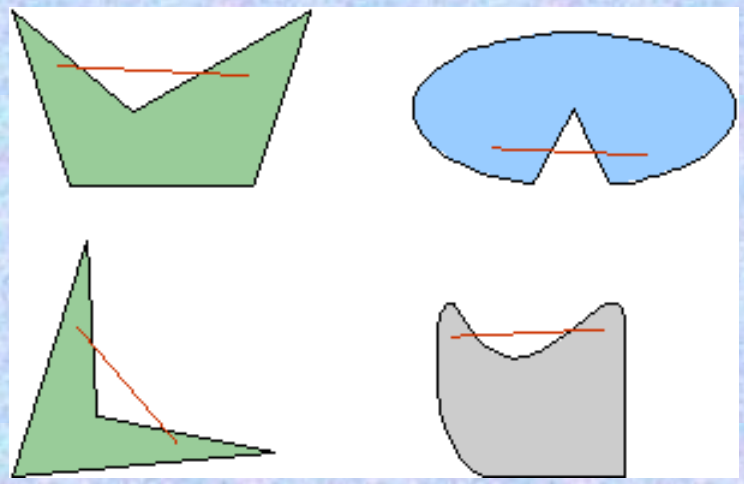
This can be applied to angles, sides of polygons, polygons and circles!

CONCAVE AND CONVEX!



- **Convex**

A figure is convex if every line segment drawn between any two points inside the figure lies entirely inside the figure.



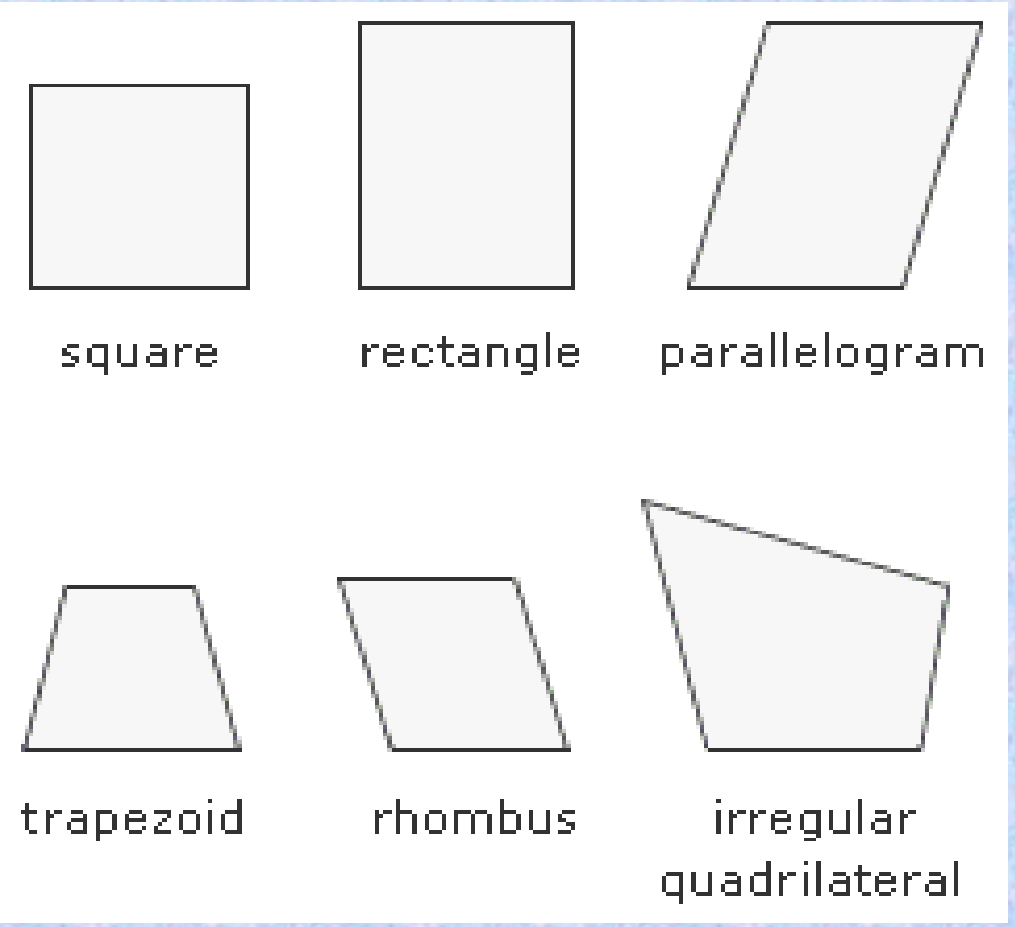
CONCAVE

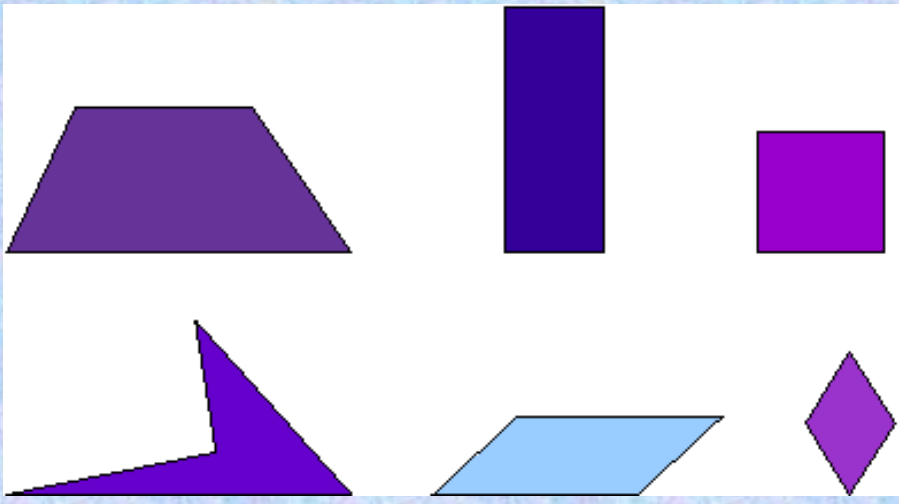
A figure that is not convex is called a concave figure.

**Note the red line segment drawn between two points inside the figure that also passes outside of the figure.

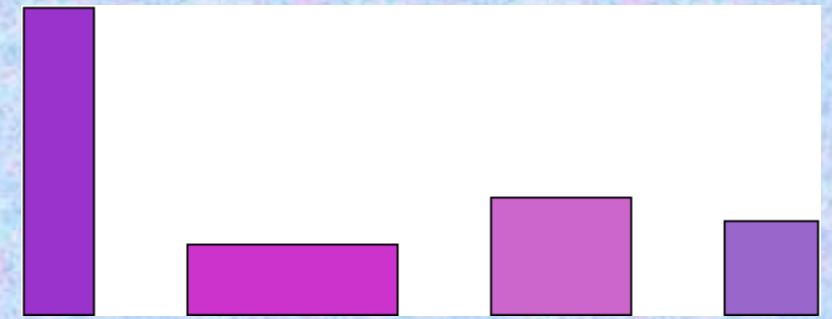
QUADRILATERALS

- A four-sided polygon.
- The sum of the angles of a quadrilateral is 360 degrees.



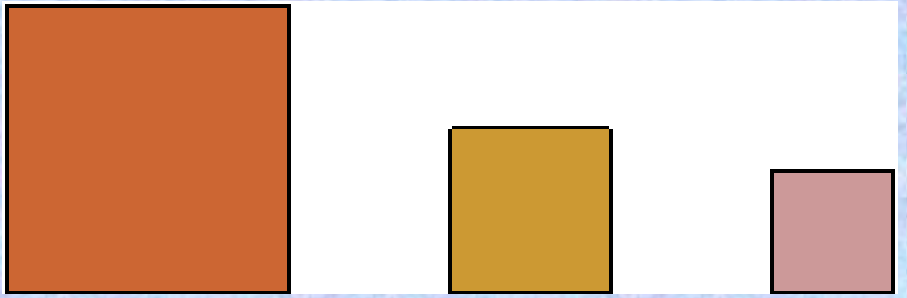


TYPES OF QUADRILATERALS



- **Rectangle**

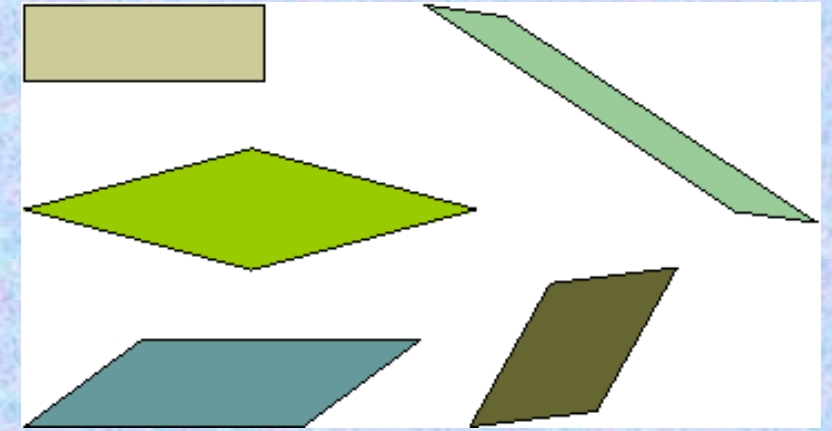
A four-sided polygon having all right angles.



- **Square**

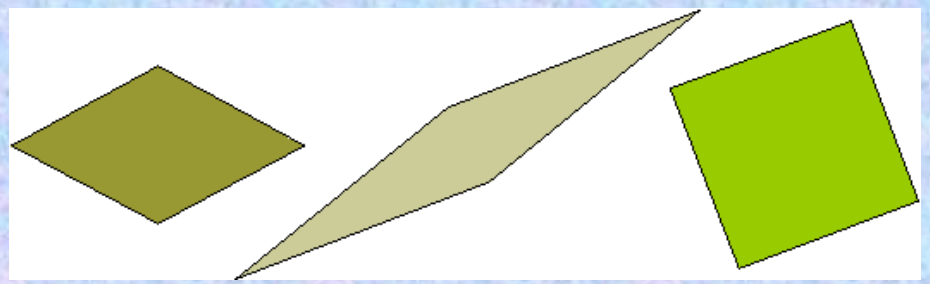
A four-sided polygon having equal-length sides **meeting at right angles.**

TYPES OF QUADRILATERALS



- **Parallelogram**

A four-sided polygon with two pairs of parallel sides.



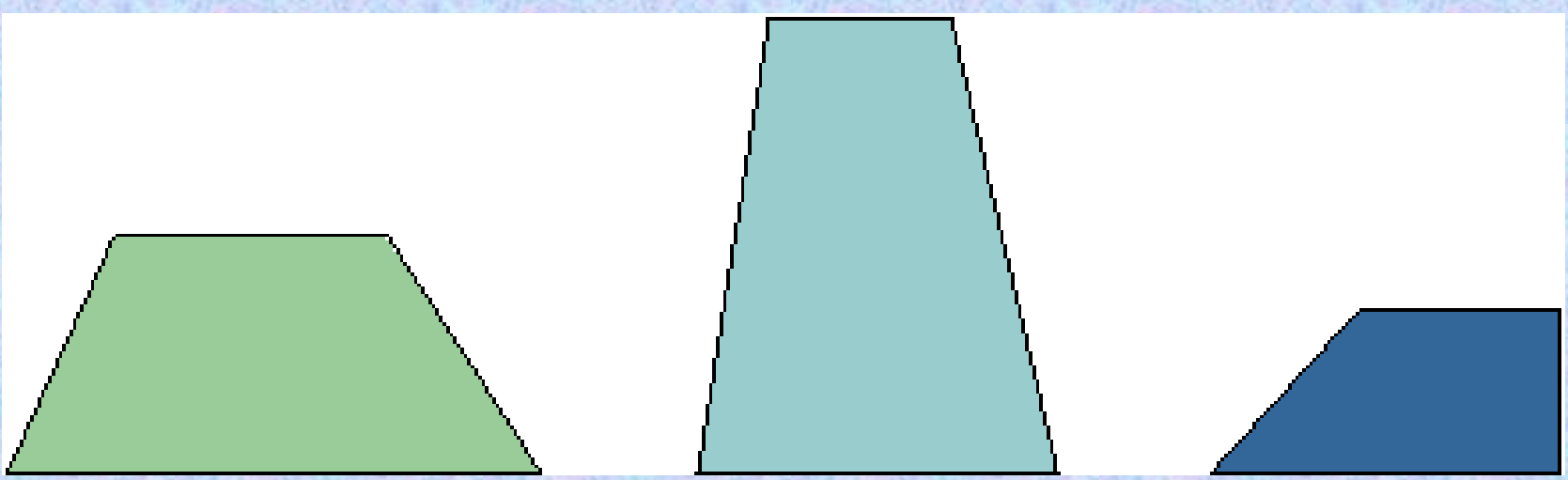
- **Rhombus**

A four-sided polygon having all four sides of equal length.

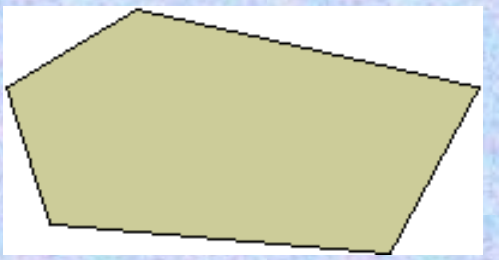
1 MORE QUADRILATERAL!

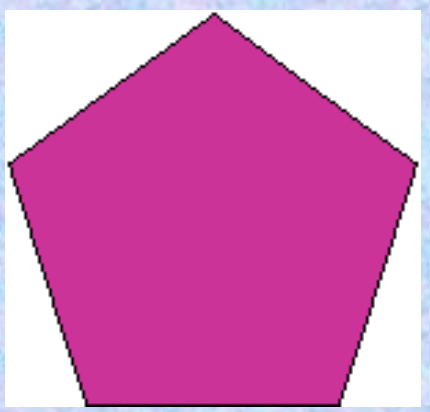
- **Trapezoid -**

  A four-sided polygon having exactly one pair of parallel sides. The two sides that are parallel are called the bases of the trapezoid.



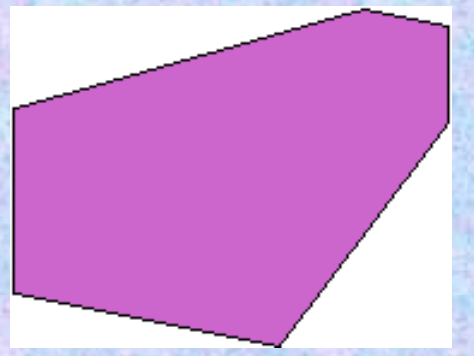
FIVE AND SIX SIDED POLYGONS!

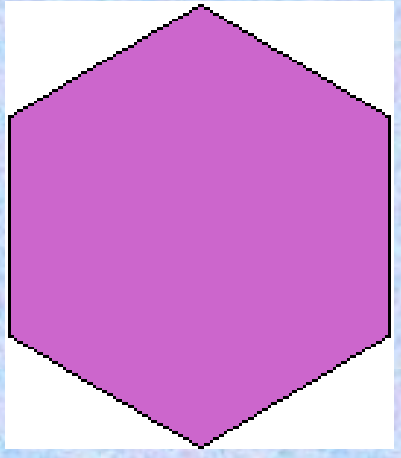




- **Pentagon**

A **five-sided polygon**. The sum of the angles of a pentagon is 540 degrees.

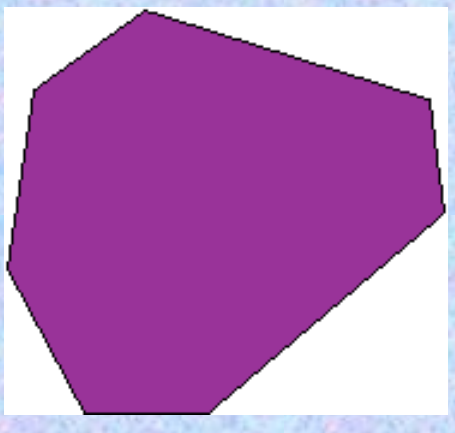


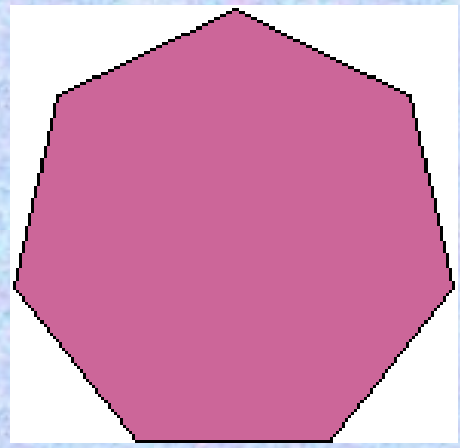


Hexagon

A **six-sided polygon**. The sum of the angles of a hexagon is 720 degrees

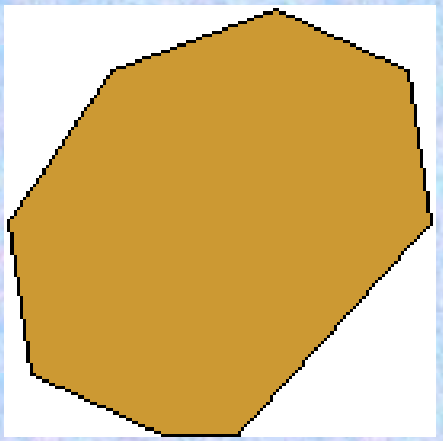
SEVEN AND EIGHT SIDED FIRGURES!

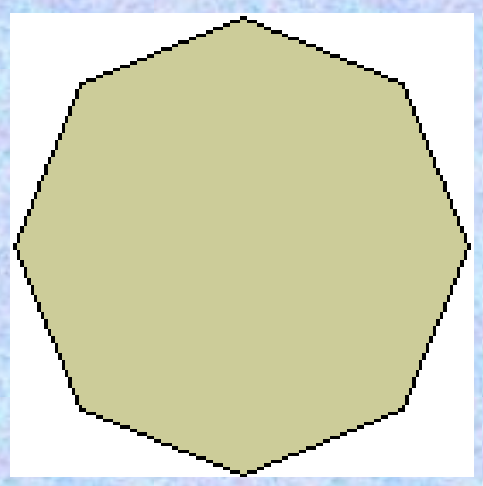




- **Heptagon**

A **seven-sided polygon**. The sum of the angles of a heptagon is 900 degrees.

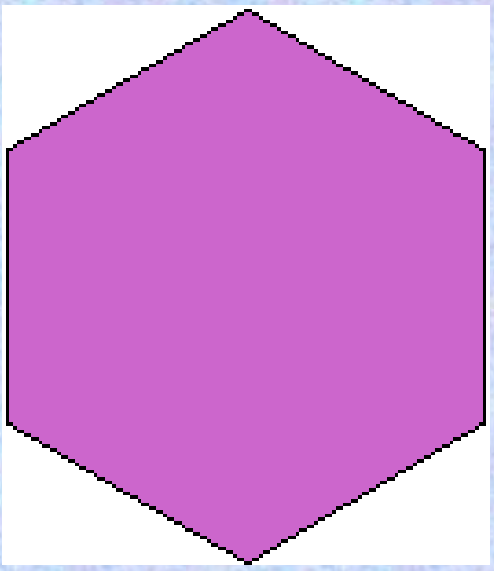


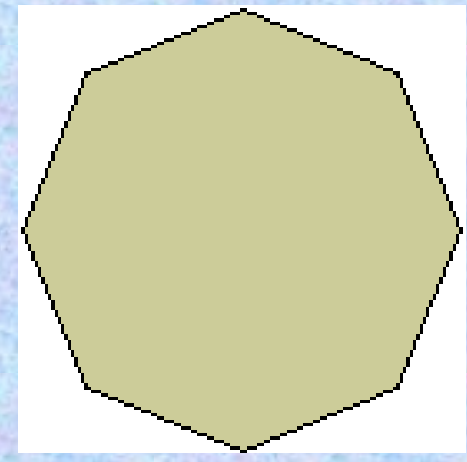


- **Octagon**

An **eight-sided polygon**. The sum of the angles of an octagon is 1080 degrees.

HOW MANY TOTAL DEGREES DOES THE ANGLES OF THIS HEXAGON HAVE?





- To find out how many degrees in all the INTERIOR angles of this hexagon, you need to use the following formula:

Sum of the = (number of sides –2) X 180
angles

FOR EXAMPLE: S = (6 – 2) x 180

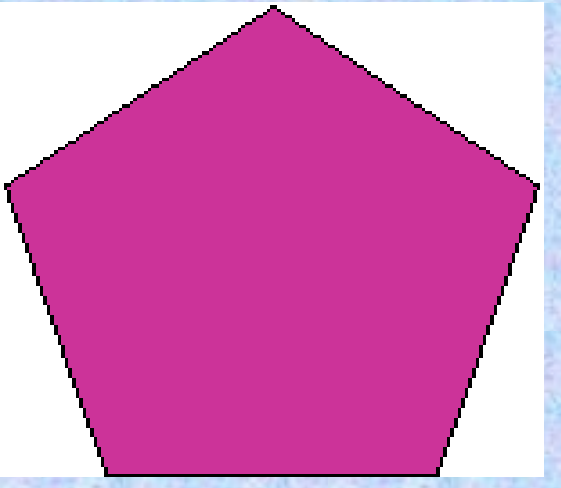
S = (4) X 180

S = 720 DEGREES

YOUR TURN! TRY THE OCTAGON!

(Use the same formula as above!)

NOW, CAN YOU FIGURE OUT HOW MANY DEGREES EACH ANGLE HAS?



- **FIRST –**

Find the sum of the angles using the formula: S = (number of sides –2) x 180.

S = (5 – 2) x 180

S = 3 x 180

S = 540

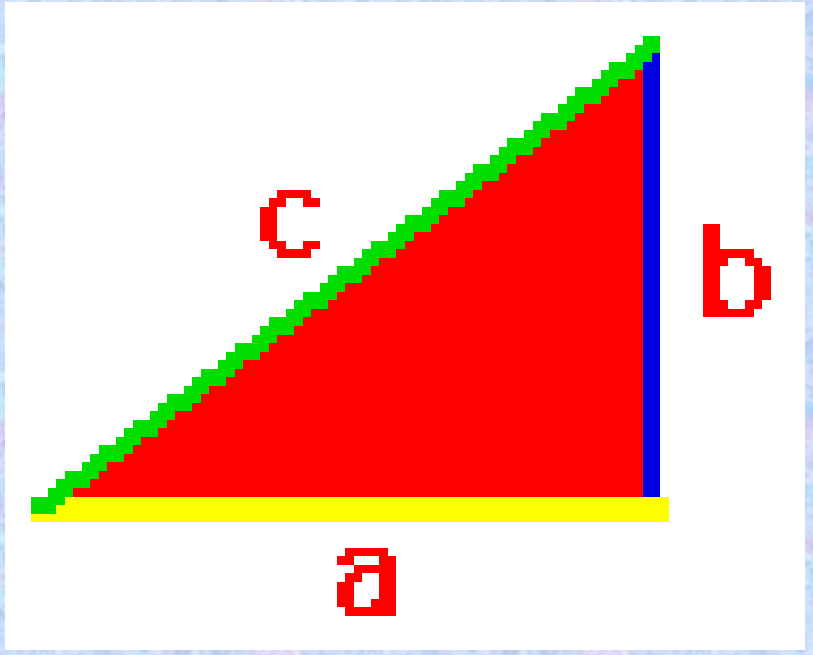
Now: Take the SUM OF THE ANGLES and DIVIDE the SUM by NUMBER OF SIDES.

$$\text{\# of degrees} = \frac{\text{sum of angles}}{\text{number of sides}}$$

$$\text{\# of degrees} = \frac{540}{5}$$

# of degrees = 108 degrees

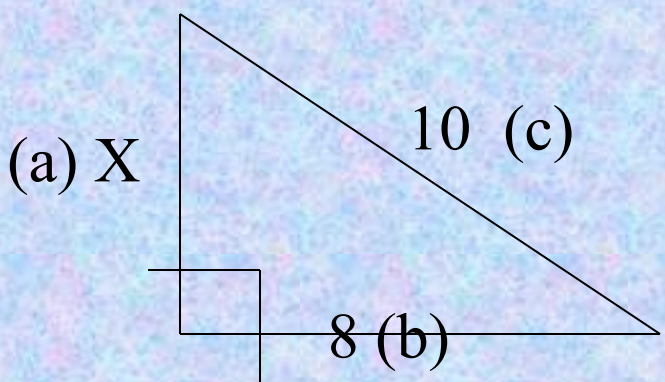
Pythagorean Theorem



- In algebraic terms,

$$a^2 + b^2 = c^2$$

where **c** is the hypotenuse while **a** and **b** are the sides (LEGS) of the triangle.



HOW DO YOU FIND X?

$a^2 + b^2 = c^2$ (YOU SOLVE IT!)

CONVERSIONS YOU MUST KNOW!

LIQUIDS/ DRY GOODS –

U.S. STANDARD MEASURE

- 1 cup = 8 fluid ounces
- 1 pint = 2 cups
- 1 quart = 2 pints
- 1 gallon = 4 quarts
- 1 pound = 16 ounces
- 1 ton = 2,000 pounds

TIME –

- 1 hour = 60 minutes
- 1 minute = 60 seconds
- 1 year = 365 days

LENGTH –

- 1 foot = 12 inches
- 1 yard = 3 feet

METRICS –

- 1 kilogram = 1000 grams
- 1 Liter = 1000 milliliters
- 1 centimeter = 10 millimeters
- 1 meter = 100 centimeters