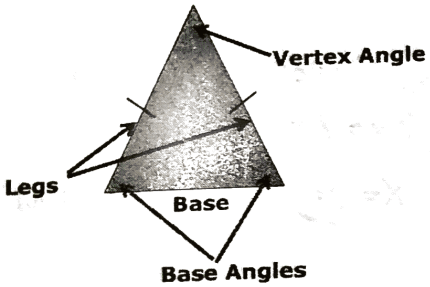
## What is an Isosceles Triangle?




## Activity

- Draw an isosceles triangle using a ruler.
  – MEASURE THE SIDES!
- Measure the base angles using a protractor.
- Repeat this activity one more time.

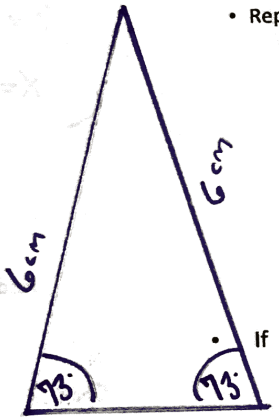
What do you notice???

## Isosceles Triangle Theorem

pg. 1098

- If two sides of a triangle are congruent, then the two angles opposite the sides are congruent.
- in other words: "The Base Angles of an isosceles triangle are congruent"

## Let's Prove this!



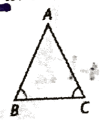


$\overline{AM} \cong \overline{AM}$ Reflexive
$\overline{AC} \cong \overline{AB}$ Given
$\overline{BM} \cong \overline{CM}$ Given
$\triangle ABM \cong \triangle ACM$ SSS
$\angle ABM \cong \angle ACM$ CPCTC

## Isosceles Triangle Theorem

- If  then 

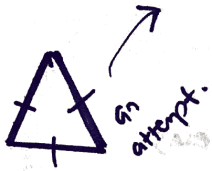
## Converse of the Isosceles Triangle Theorem

- If  then 

## Activity #2

- Draw an equilateral triangle using a ruler.
  – MEASURE THE SIDES!
- Measure the angles using a protractor.
- Repeat this activity one more time.

What do you notice???



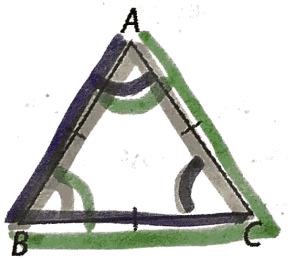

## Equilateral Triangle Theorem

If a triangle is equilateral, then it is equiangular.

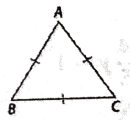
all angles have equal measures

60°

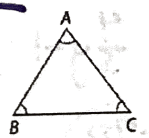
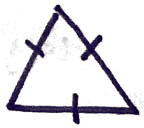
## Let's Prove this!



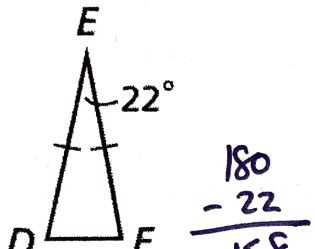

## Equilateral Triangle Theorem

- If  then 

## Converse of the Equilateral Triangle Theorem

- If  then 

**Find m∠F.**

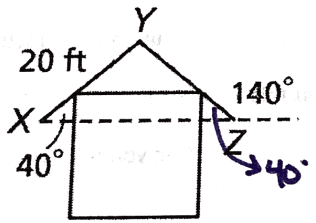



180
- 22
158

$2\overline{)158}$

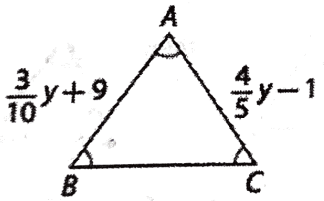
79°

**The length of $\overline{YX}$ is 20 feet.**
**Explain why the length of $\overline{YZ}$ is the same.**




Converse of the isosceles △ theorem.

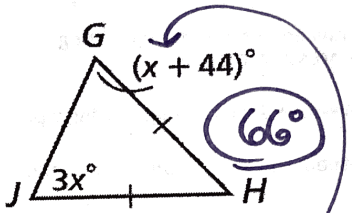
Find the length of each side.




$\frac{3}{10}y+9=\frac{4}{5}y-1$

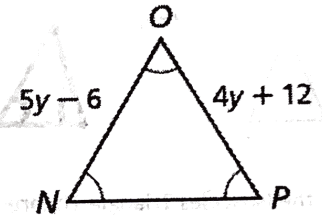
y=20

**Find m∠G.**




3x = x + 44
x = 22

**Find the value of y.**




5y − 6 = 4y + 12

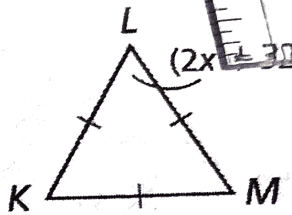
y = 18

Consider the vertex and base angles of an isosceles triangle. Can they be right angles? Can they be obtuse? Explain.

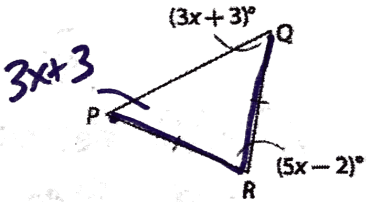
The base angles can't both be 90° or obtuse because all the angles in a triangle have to sum to 180°

**Find the value of x.**

2x + 32 = 60
2x = 28
x = 14




**Find m∠P.**




3x + 3 + 3x + 3 + 5x − 2 = 180

x = 16

## Homework

- Angle Chasing
- pg. 1104-1108 (4-10, 12, 13, 19, 20)