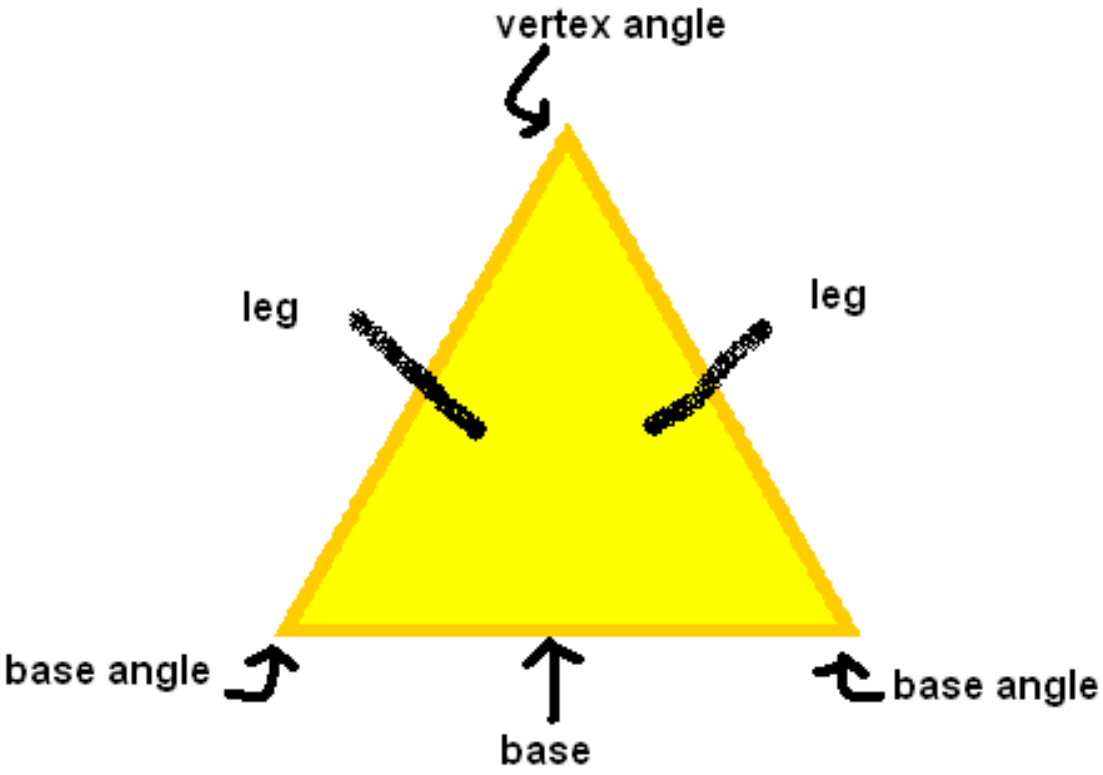
ISOSCELES AND EQUILATERAL TRIANGLES

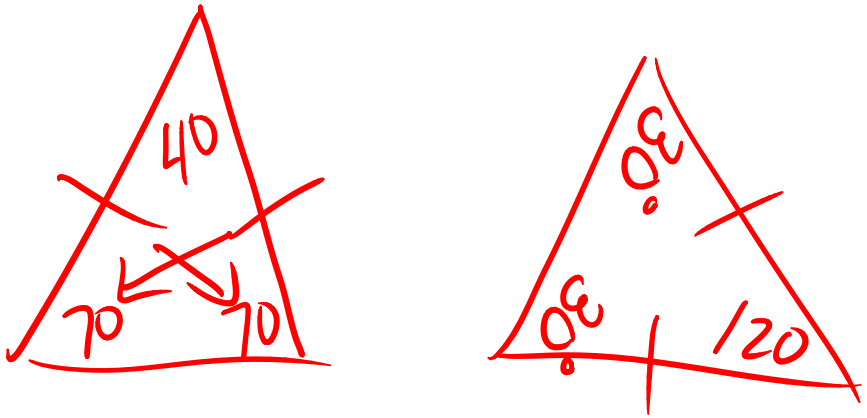
Lesson 4.6

ISOSCELES TRIANGLES



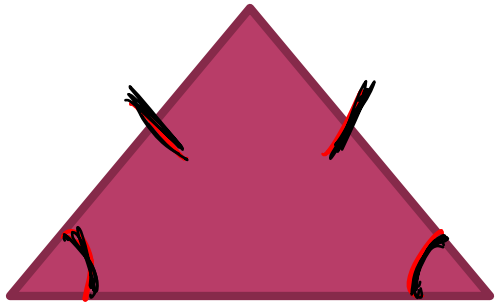
DISCOVERING ISOSCELES TRIANGLES

- Get out a piece of paper.
- Pick any measurement.
- Create a triangle that has two = sides of that measurement.
- Listen to Mrs. McMahan about the rest of the directions.



- Isosceles Triangle Thm
- If two sides of a triangle are congruent then the angles opposite those sides are congruent.

- Converse of the Isosceles Triangle Thm
- If two angles of a triangle are congruent then the sides opposite those angles are congruent.

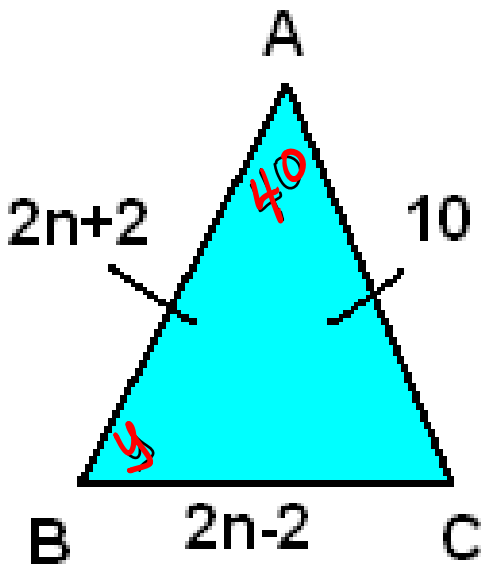


EXAMPLE

$180 - 40 = 140$

$140/2 = 70 = y$

- Find AB, BC, and y.



$2n + 2 = 10$

$-2 \quad -2$

$\frac{2n}{2} = \frac{8}{2}$

$n = 4$

$2 \cdot 4 + 2$

$8 + 2 = 10$

$2 \cdot 4 - 2$

$8 - 2$

6

$\overline{BC} = 6$

$\overline{AB} = 10$

EXAMPLE:

60°

$\triangle ABF$ is isosceles, $\triangle CDF$ is equilateral, and $m\angle AFD = 150$. Find each measure.

5. $m\angle CFD$ 60

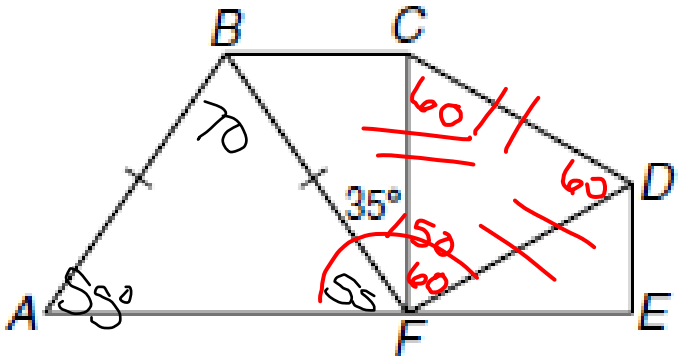
6. $m\angle AFB$ 55

7. $m\angle ABF$ 70

8. $m\angle A$ 55

35 + 60 = 95 → 150 − 95 = 55

55 + 55 = 110 → 180 − 110 = 70



COROLLARIES

- Corollary: The measure of each angle of an equiangular triangle are 60.

- Corollary: A triangle is equilateral iff it is equiangular.