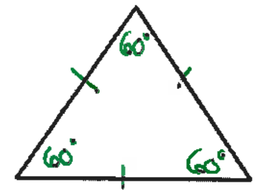
Geometry – Mr. Bo
Unit 4 – Day 5 Notes

Name: ____________________
Date: ____________________

Equilateral & Isosceles Triangles

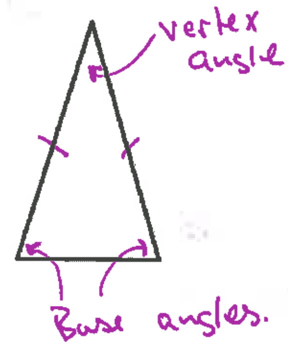
Equilateral Triangle: △ with 3 ≅ sides.

Theorem: Equilateral △ is also equiangular.

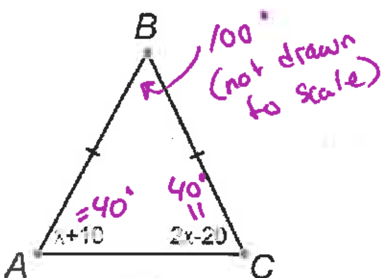


Isosceles Triangle: △ with 2 ≅ sides.

Theorem: Base ∠'s of an Isosc. △ are ≅.



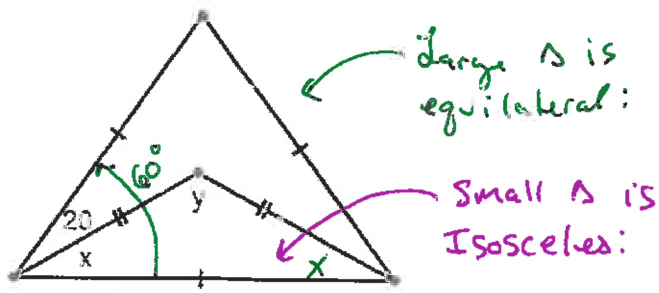
Examples:



Find m∠B

$x+10 = 2x-20$
$30 = x$

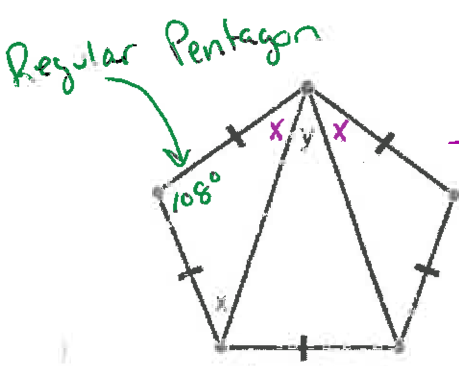
$m\angle B = 180 - 80 = 100°$



Find x and y

$x + 20 = 60$
$x = 40$

$x + x + y = 180$
$40 + 40 + y = 180$
$y = 100°$



Find x and y

int ∠ Sum $= 180(5-2)$
$= 180(3)$
$= 540°$

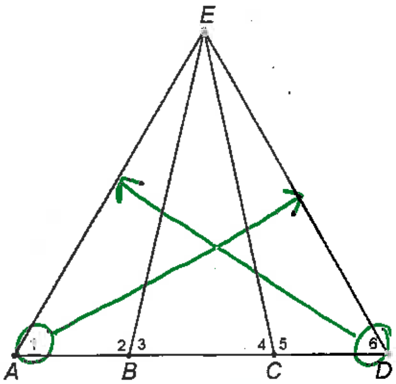
each ∠ $= \frac{540}{5} = 108°$

$x + x + 108 = 180$
$2x + 108 = 180$
$2x = 72$
$\boxed{x = 36}$

$x + x + y = 108$
$36 + 36 + y = 108$
$72 + y = 108$
$\boxed{y = 36}$

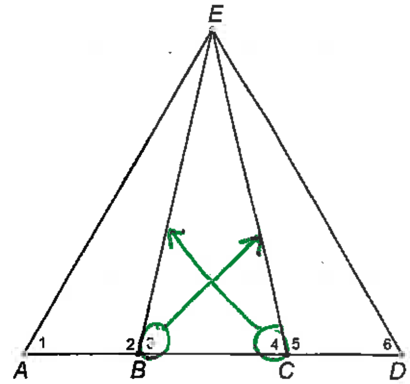
Isosceles Triangle Theorems:

1. In a Δ, sides opp. $\cong$ <'s are $\cong$
2. In a Δ, <'s opp. $\cong$ sides are $\cong$.



Given $\angle 1 \cong \angle 6$ ← <'s in ΔAED

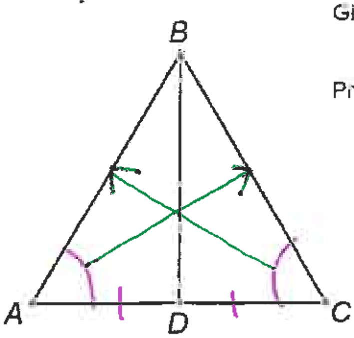
then $\overline{AE} \cong \overline{ED}$



Given: $\angle 3 \cong \angle 4$ ← <'s of ΔBEC

then: $\overline{EB} \cong \overline{EC}$

Example:



SAS

(makes $\Delta ABD \cong \Delta CBD$)

Given: $\angle A \cong \angle C$

D midpoint of $\overline{AC}$

Prove: $\angle ABD \cong \angle CBD$ ← need to prove $\cong$ Δ's first.

S	R.
① $\angle A \cong \angle C$ (angle)	① Given
② $\overline{AB} \cong \overline{BC}$ (side)	② In a Δ, Sides opp. $\cong$ <'s are $\cong$.
③ D midpt of $\overline{AC}$	③ Given
④ $\overline{AD} \cong \overline{CD}$ (side)	④ midpt makes $\cong$ segs.
⑤ $\Delta ABD \cong \Delta CBD$	⑤ SAS
⑥ $\angle ABD \cong \angle CBD$	⑥ CPCTC