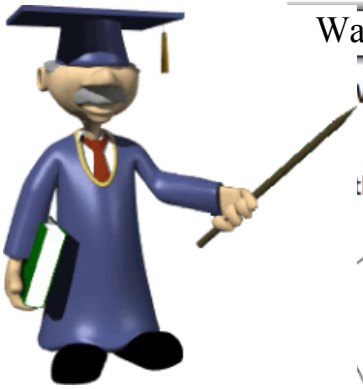
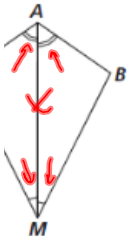


Warm-up — Lesson 4-4

What does "CPCTC" stand for?

Corresponding Parts of Congruent △'s R ≅

the diagram for Exercises 2 and 3.



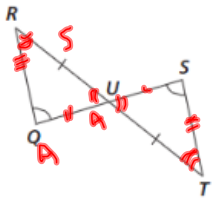
2. Tell how you would show $\triangle ABM \cong \triangle ACM$.

∠CAM ≅ ∠BAM given
$\overline{AM} \cong \overline{AM}$ Ref! POC
∠AMC ≅ ∠AMB given
ASA

3. Tell what other parts are congruent by CPCTC.

$\overline{AC} \cong \overline{AB}$, $\overline{CM} \cong \overline{BM}$, ∠C ≅ ∠B

Use the diagram for Exercises 4 and 5.



4. Tell how you would show $\triangle RUQ \cong \triangle TUS$.

∠Q ≅ ∠S ∠RUQ ≅ ∠SUT vert ∠'s
$\overline{UT} \cong \overline{RU}$
AAS

5. Tell what other parts are congruent by CPCTC.

∠R ≅ ∠T $\overline{RQ} \cong \overline{TS}$
$\overline{QU} \cong \overline{SU}$

① $y = x - 4$ and $y = 3x + 2$

$x - 4 = 3x + 2$

$-x \quad -2 \quad -x \quad -2$

$-6 = 2x$

$\frac{-6}{2} = \frac{2x}{2}$

$-3 = x$

$y = 3x + 2$, $x = -3$

$y = 3(-3) + 2$

$y = -9 + 2$

$y = -7$

$(-3, -7)$

(4)

$2x - 3 = y + 3$ ← other equation

$2x + y = -3 \rightarrow y = -2x - 3$

$2x - 3 = (-2x - 3) + 3$

$2x - 3 = -2x - 3 + 3$

$+2x \quad +2x$

$4x - 3 = 0$

$+3 \quad +3$

$4x = 3$

$x = \frac{3}{4}$ or .75

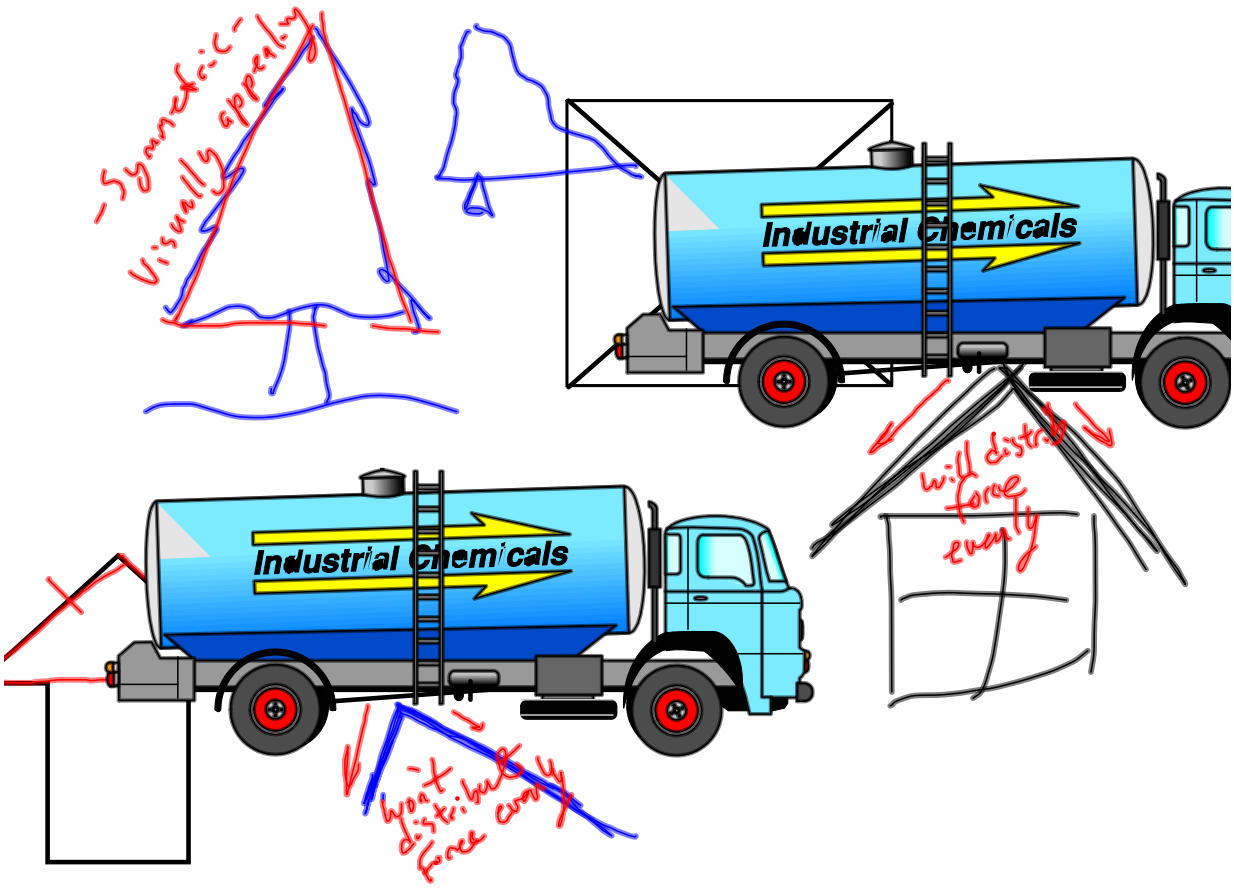
$2x + y = -3$

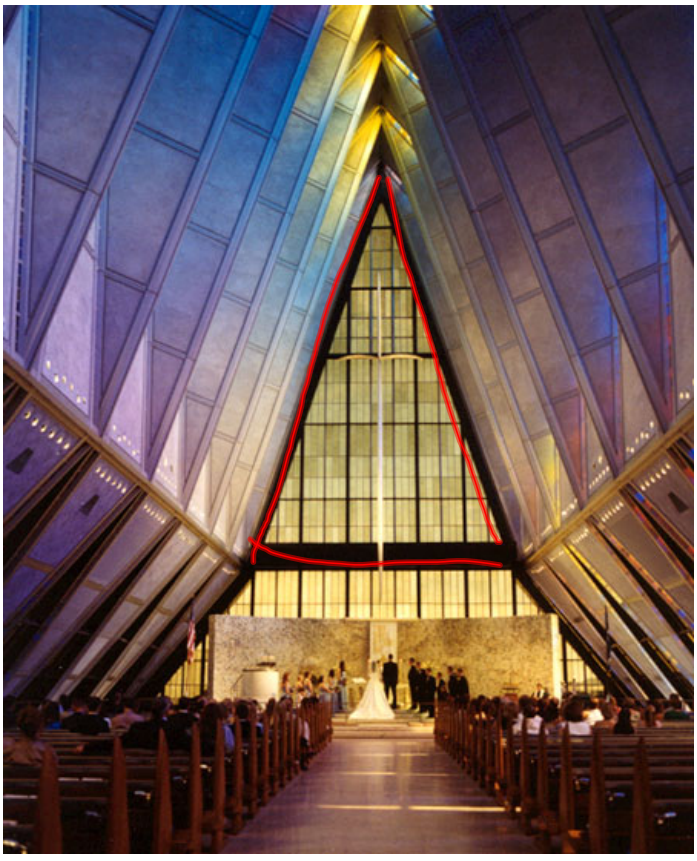
$2\left(\frac{3}{4}\right) + y = -3$

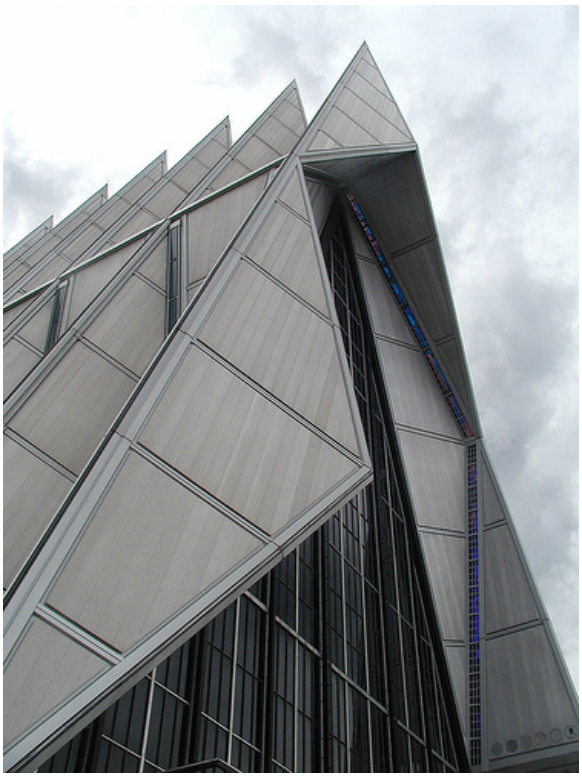
$\frac{3}{2} + y = -3$

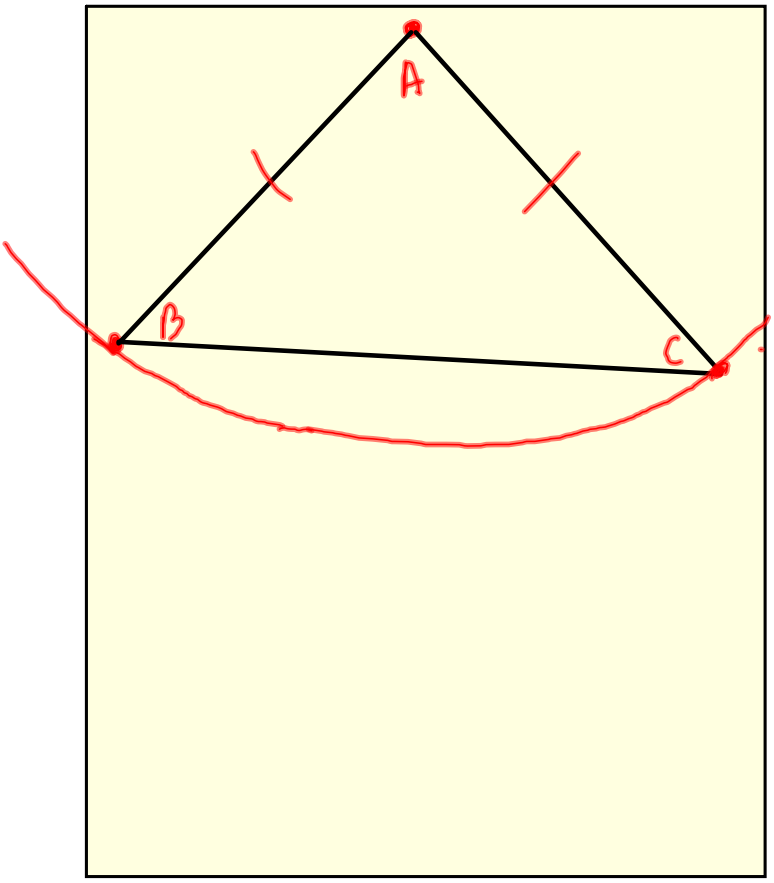
$y = -\frac{3}{2} - \frac{3}{2}$

$y = -\frac{9}{2}$ or -4.5









$\overline{AB} \cong \overline{AC}$

OBSERVATIONS

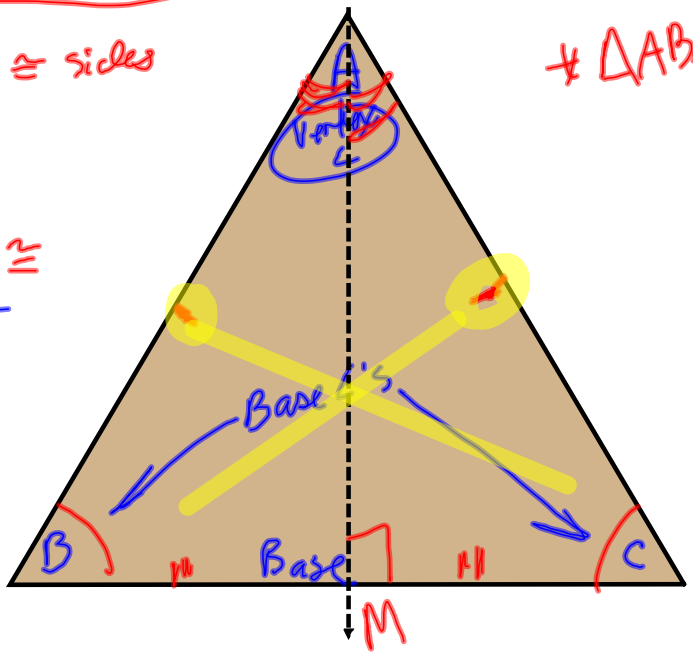
* ∠'s opposite ≅ sides
  are ≅
  → ∠B ≅ ∠C

→ Base ∠'s ≅

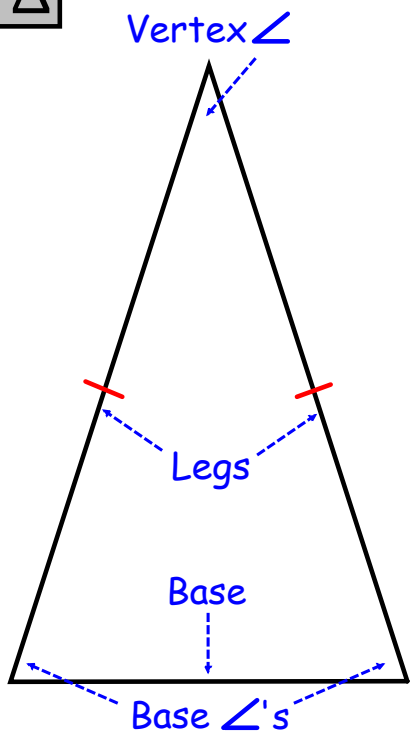
* $\overline{BM} \cong \overline{MC}$

* $\overline{AM} \perp \overline{BM}$

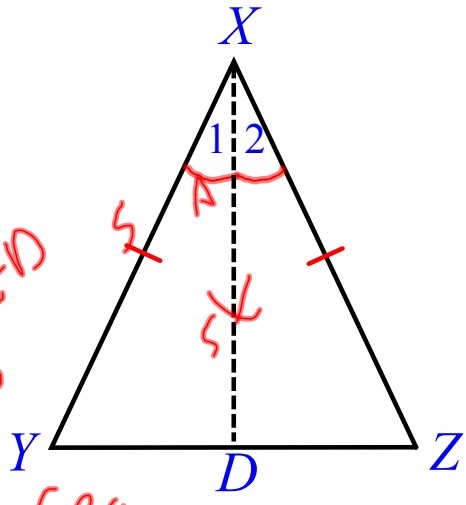
* $\triangle ABM \cong \triangle ACM$



Anatomy of an Isosceles Δ



Given	$\overline{XY} \cong \overline{XZ}$
Prove	$\angle Y \cong \angle Z$



∴

$\Delta XYD \cong \Delta XZD$ by SAS

$\angle Y \cong \angle Z$ by CPCTC

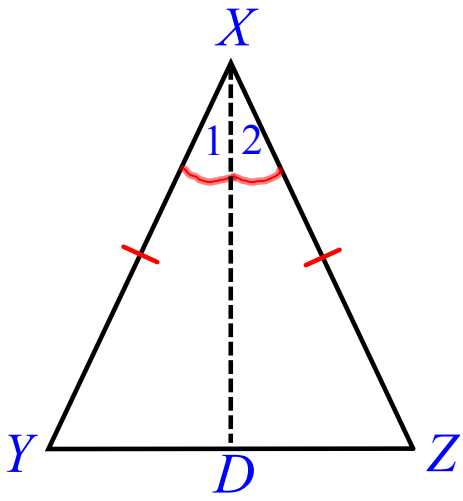
Given $\overline{XY} \cong \overline{XZ}$

Prove $\angle Y \cong \angle Z$

Construct *XD* bisecting $\angle YXZ$

$XY \cong XZ$	*given*
$\angle 1 \cong \angle 2$	*defn angle bisector*
$XB \cong XB$	*refl POC*
$\Delta XYD \cong \Delta XZD$	*SAS*
$\angle Y \cong \angle Z$	*CPCTC*

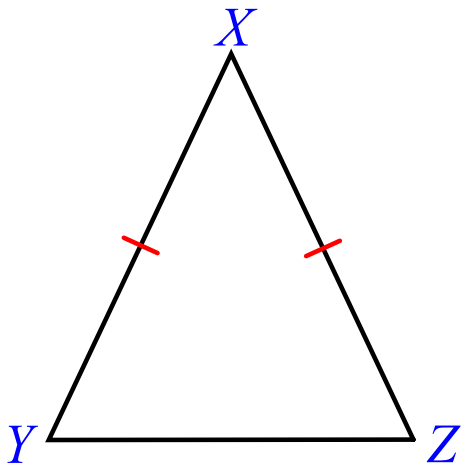
QED



Thm 4-3 Isosceles Triangle Theorem

If 2 sides of a Δ are ≅

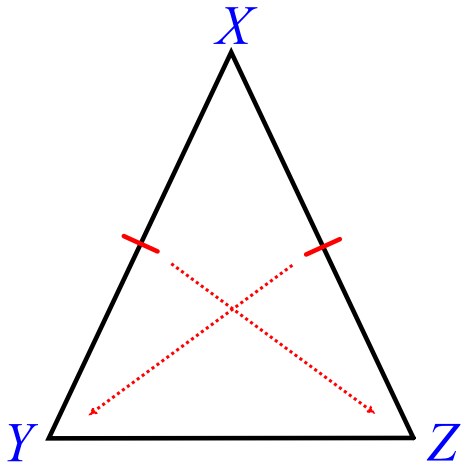
then the angles opposite those sides are ≅.



Thm 4-3 Isosceles Triangle Theorem

If 2 sides of a Δ are $\cong$

then the angles opposite those sides are $\cong$.

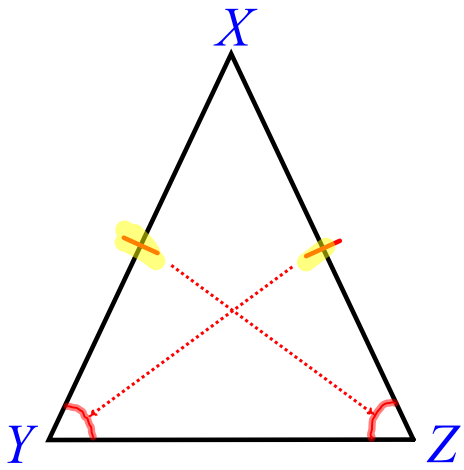


Isos Δ thm

Thm 4-3 Isosceles Triangle Theorem

If 2 sides of a Δ are $\cong$

then the angles opposite those sides are $\cong$.

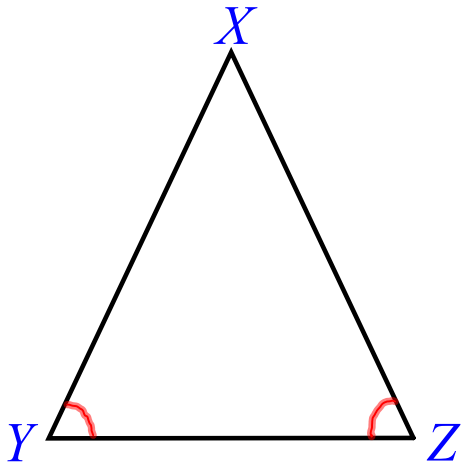


proves base $\angle$'s $\cong$

Thm 4-4 Conv of Isosceles Δ Thm

If 2 angles of a Δ are ≅

then the sides opposite those angles are ≅.



Thm 4-4 Conv of Isosceles Δ Thm

If 2 angles of a Δ are ≅

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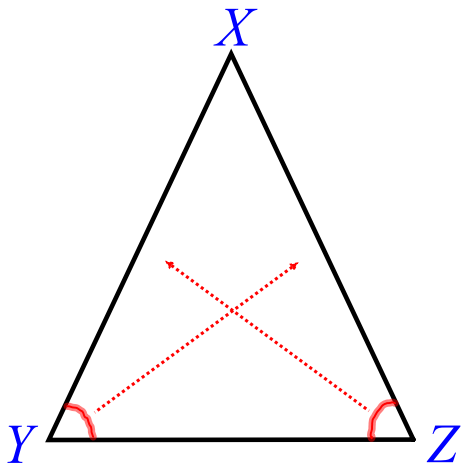
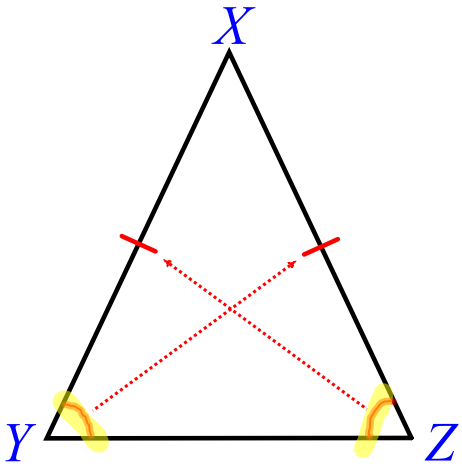


Thm 4-4 Conv of Isosceles Δ Thm

If 2 angles of a Δ are ≅

then the sides opposite those angles are ≅.

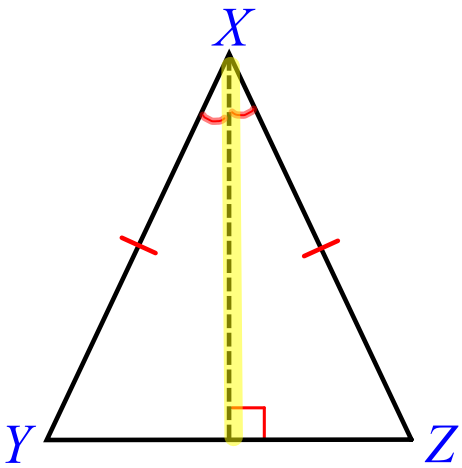
Proves that a Δ is an isosceles Δ



Thm 4-5 Isosceles Δ Bisector Thm

The bisector of the vertex angle of an isosceles Δ

is the ⊥ bisector of the base.



Isos Δ Bis Thm

Thm 4-5 Isosceles Δ Bisector Thm

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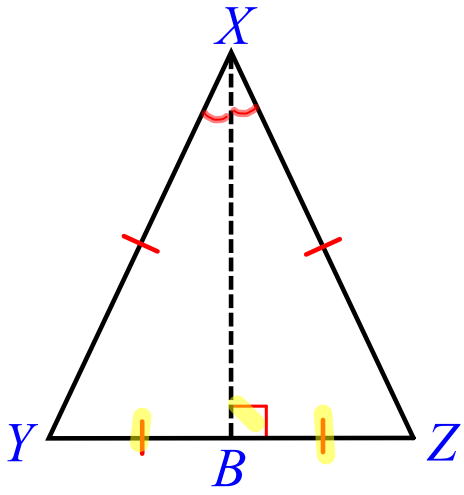

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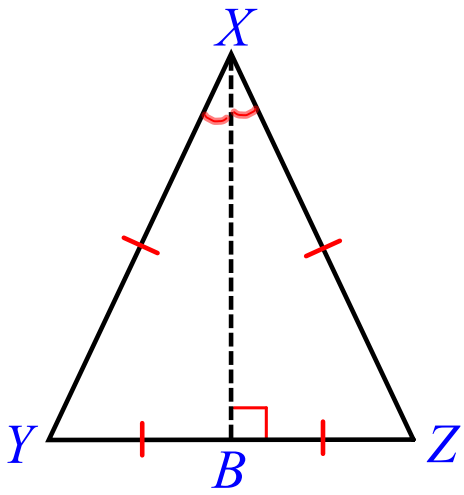


$\overline{XB} \cong \overline{YZ}$

$\overline{YB} \cong \overline{ZB}$

Corollary to Thm 4-3

... err, what's a corollary ? ? ?

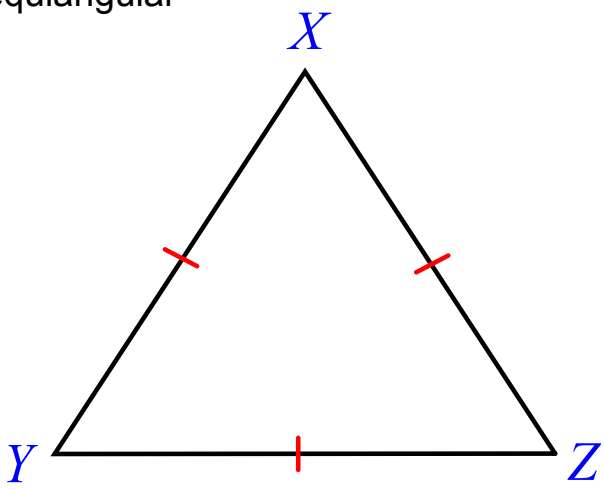
A simple statement that follows immediately from a theorem.

Corollary to Thm 4-3

If a Δ is equilateral then it is equiangular

Given: $\overline{XY} \cong \overline{YZ} \cong \overline{XZ}$

Prove: $\angle X \cong \angle Y \cong \angle Z$

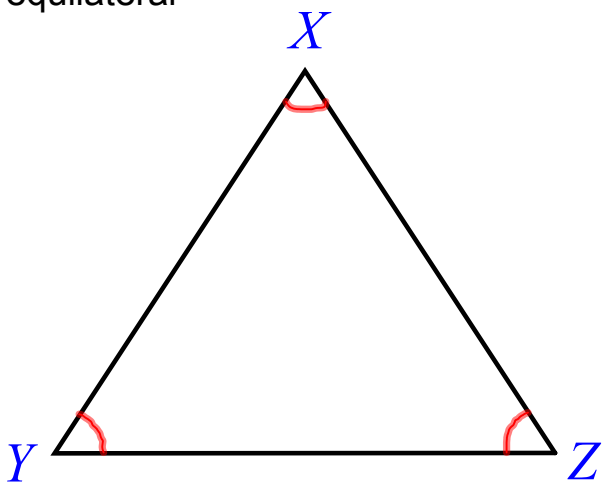


Corollary to Thm 4-4

If a Δ is equiangular then it is equilateral

Given: $\angle X \cong \angle Y \cong \angle Z$

Prove: $\overline{XY} \cong \overline{YZ} \cong \overline{XZ}$



questions

next

Example

... next page ...

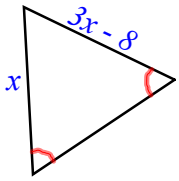
1 What kind of △ is this?

A Equiangular

B Scalene

C Isosceles

D none of the above



Example

... next page ...

2 How do you know?

A Thm 4-1

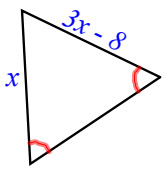
B Thm 4-2

C Thm 4-3

D Thm 4-4

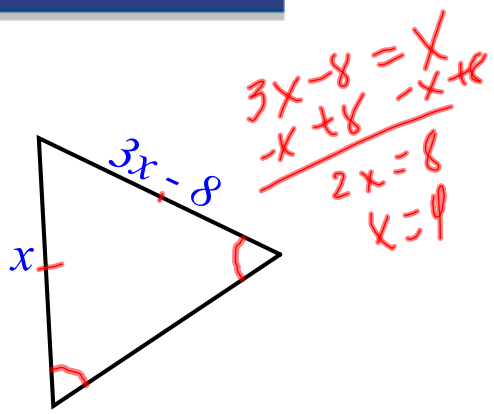
E Thm 4-5

F none of the above



Example

1) What type of Δ is this?
   - A Equiangular
   - B Scalene
   - C Isosceles
   - D none of the above
2) How do you know?
   - A Thm 4-1
   - B Thm 4-2
   - C Thm 4-3
   - D Thm 4-4
   - E Thm 4-5
   - F none of the above
3) What is the value of x?



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questions

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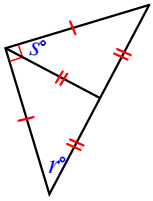
Example

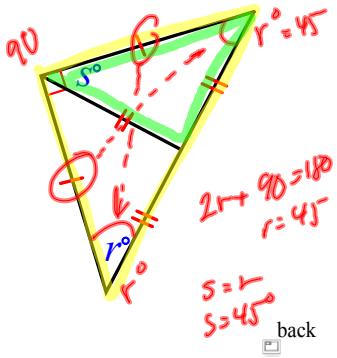
next page...

1 What is the value of s?



Example

1) What is the value of r?
2) What is the value of s?



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questions

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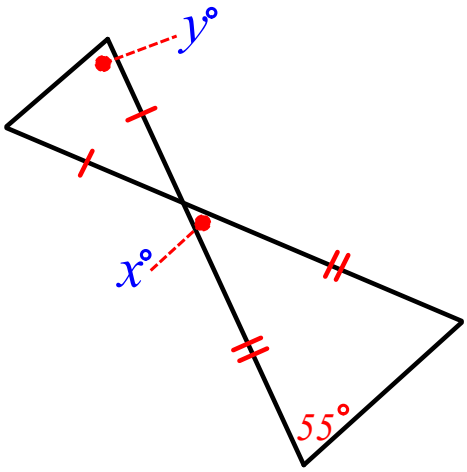
Example

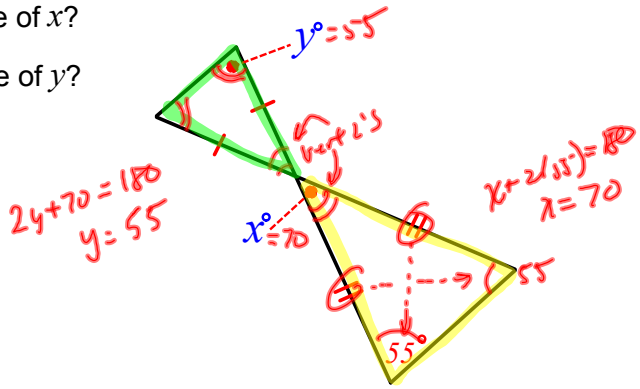
1 **What is the value of x?**



Example

1) What is the value of x?

2) What is the value of y?



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L4-5 HW Problems

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21-26, 31,
34-38,
40, 41,
46-50