

## Warm Up

Classify each triangle by its sides.

1. 2 cm, 2 cm, 2 cm
2. 7 ft, 11 ft, 7 ft
3. 9 m, 8 m, 10 m

Equilateral      Isosceles      Scalene

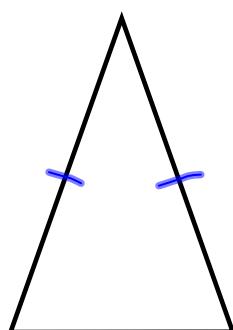
4. In  $\Delta ABC$ ,  $m\angle A = 70^\circ$  and  $m\angle B = 50^\circ$ . What is  $m\angle C$ ?

60°

5. In  $\Delta DEF$ ,  $m\angle D = m\angle E$  and  $m\angle F = 26^\circ$ . What are the measures of  $\angle D$  and  $\angle E$ ?

>>°

## 4-7 Isosceles and Equilateral Triangles



Base angles theorem if 2 sides of a  $\Delta$   
are  $\cong$ , the  $\angle$ 's opposite  
them are also  $\cong$

Converse of base angles theorem

if 2  $\angle$ 's of a  $\Delta$  are  $\cong$ , the  
sides opposite them are  $\cong$

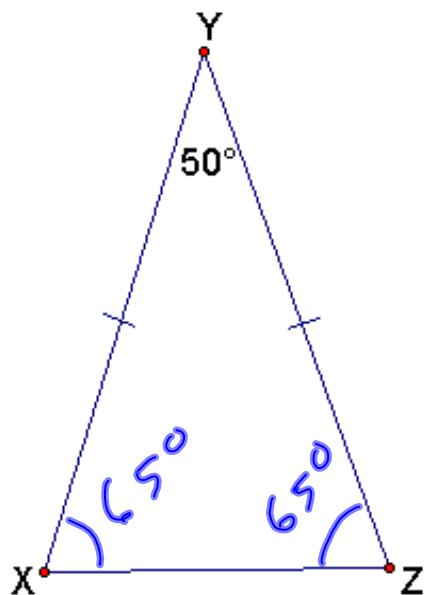
Corollary to the base angles theorem

if a  $\Delta$  is equilateral, then  
it is equiangular

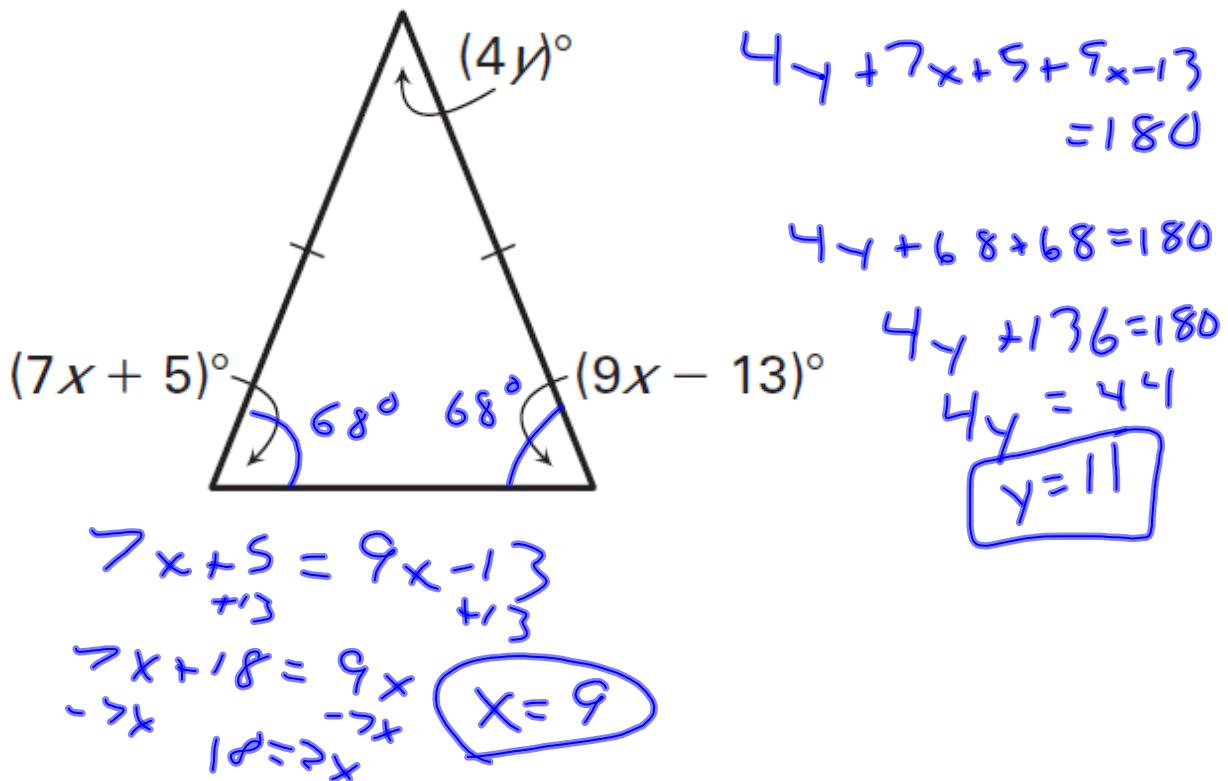
Corollary to the converse of the base angles theorem

if a  $\Delta$  is equiangular, then it is  
equilateral.

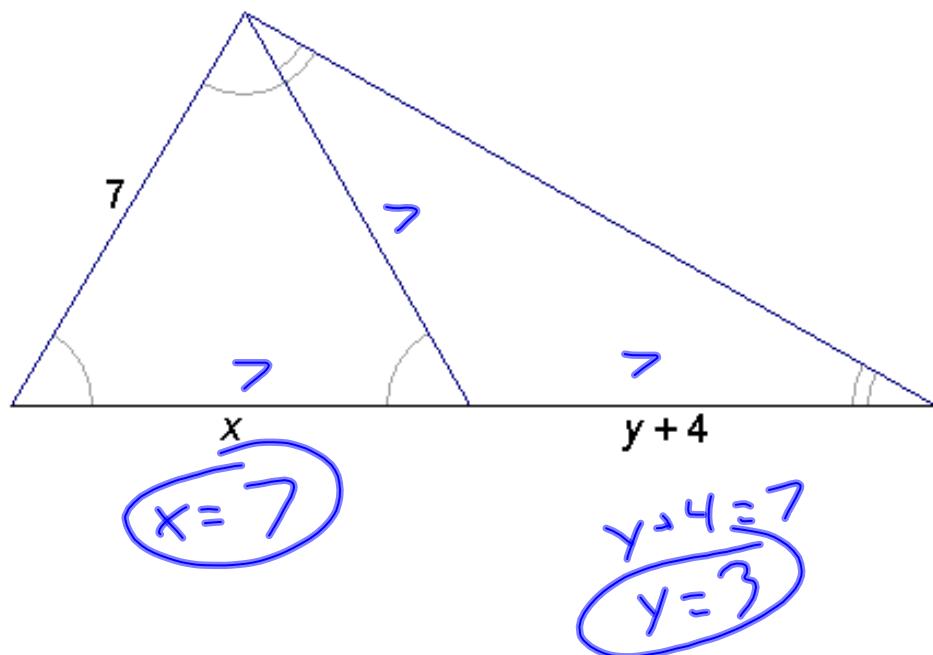
Ex 1 Find the measures of  $\angle X$  and  $\angle Z$



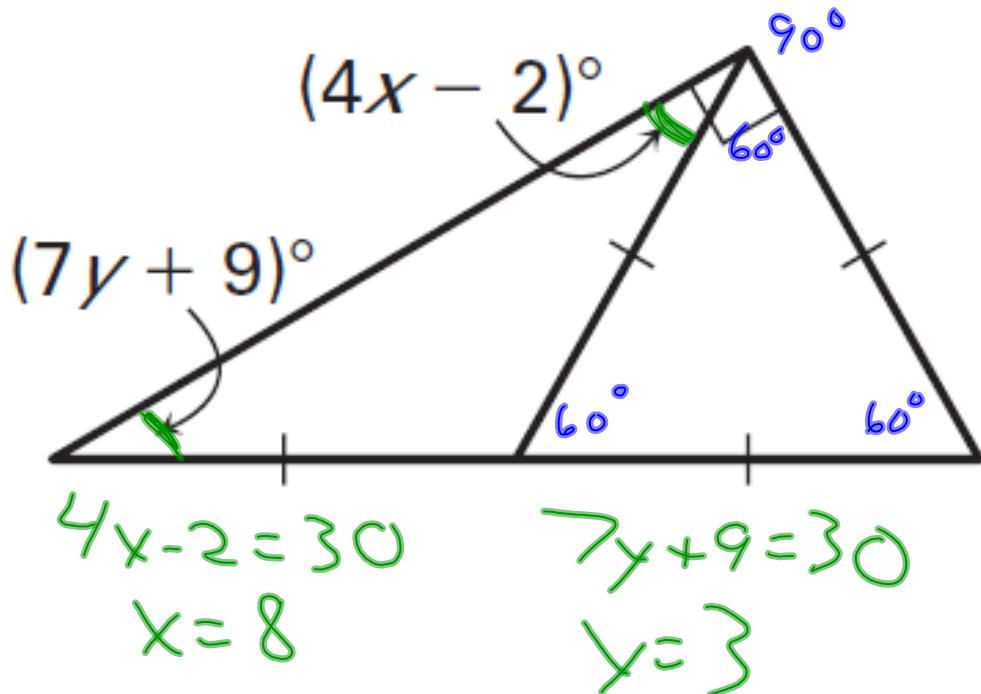
Ex 2 Find the values of  $x$  and  $y$  in the diagram.



Ex 3 Find the values of  $x$  and  $y$  in the diagram.



Ex 4 Find the values of  $x$  and  $y$  in the diagram.



Ex 5  $\overline{AC} \cong \overline{BD}$

What congruence postulate can you use to prove that  $\triangle ABC \cong \triangle DCB$

$\text{SSS}$

Explain why  $\triangle BEC$  is isosceles.

What would you do to prove that  $\triangle AED$  is isosceles?

Ex. 6

Given:  $\overline{BD}$  bisects  $\angle ADC$   
 $\overline{DB} \perp \overline{AC}$

Prove:  $\Delta ADC$  is isosceles