LESSON 4-6

Isosceles and Equilateral Triangles

:· Then

- You identified isosceles and equilateral triangles. (Lesson 4-1)

:· Now

- 1 Use properties of isosceles triangles.
- 2 Use properties of equilateral triangles.

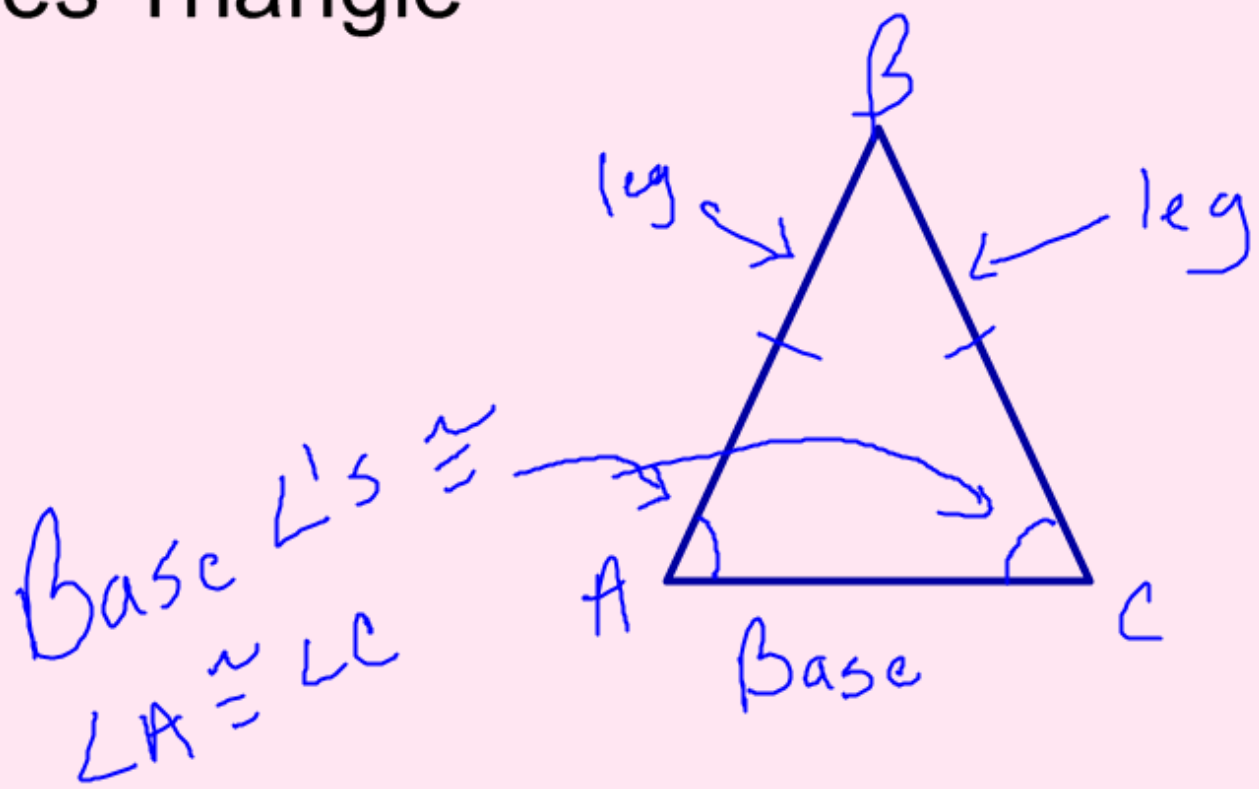
:· Why?

- The tracks on the roller coaster have triangular reinforcements between the tracks for support and stability. The triangle supports in the photo are isosceles triangles.

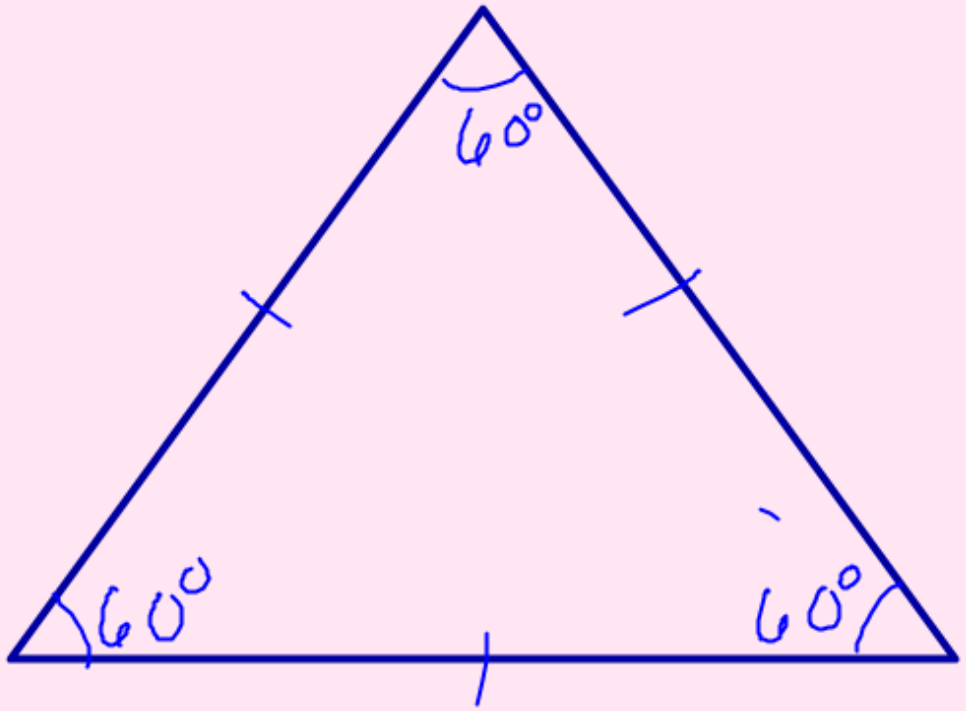
CCSS

You will use properties of isosceles and equilateral triangles.

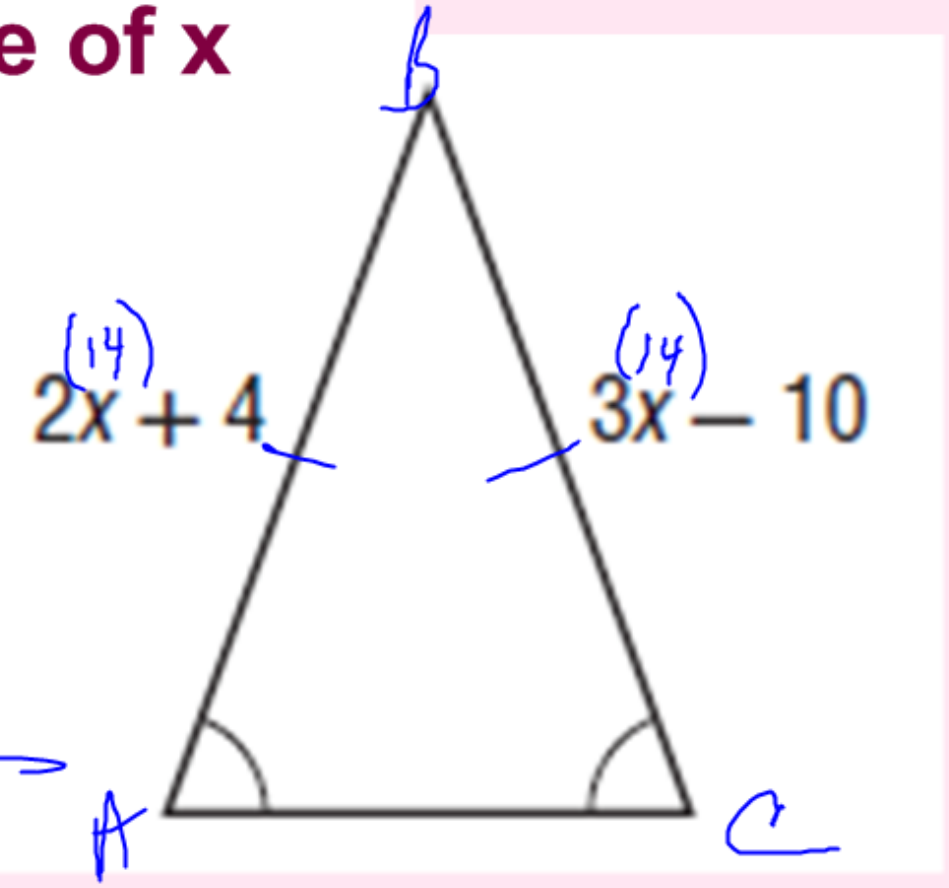
Isosceles Triangle



Equilateral Triangle



Find the value of x



$2x + 4 = 3x - 10$

$-2x \quad -2x$

$4 = x - 10$

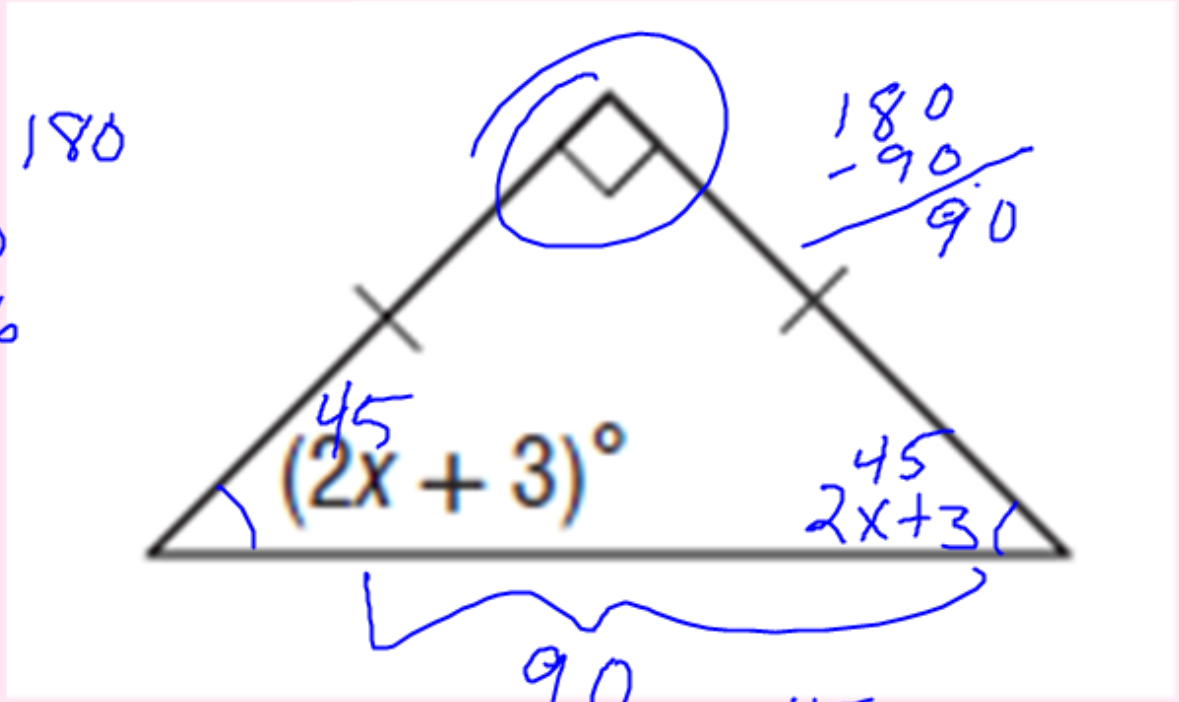
$+10 \quad +10$

$14 = x$

$AB = 32$

$BC = 32$

Find the value of x



$2x+3+2x+3+90=180$

$4x+96=180$

$-96 \quad -96$

$\frac{4x}{4} = \frac{84}{4}$

$x = 21$

$180 - 90 = 90$

$\frac{90}{2} = 45$

$2x+3=45$

$-3 \quad -3$

$2x=42$

$x=21$

$4x+6=90$

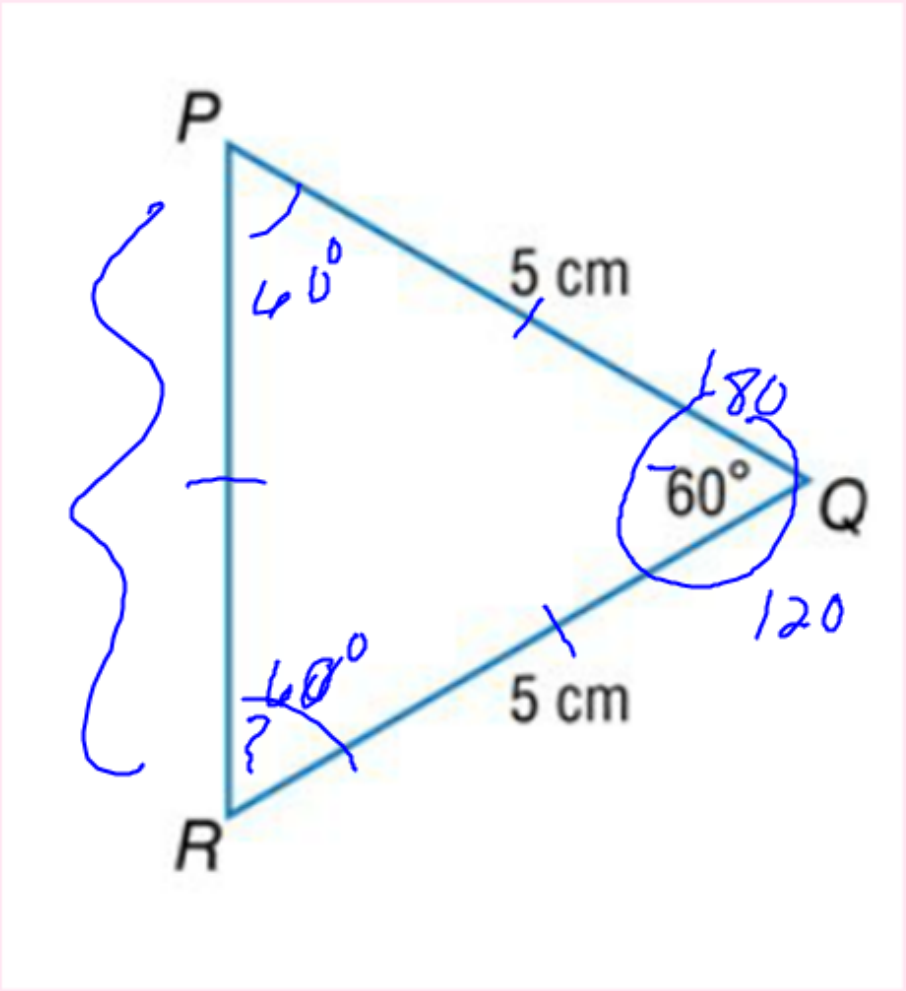
$-6 \quad -6$

$\frac{4x}{4} = \frac{84}{4}$

$x=21$

Find $m\angle R$. 60°

Find PR. 5 cm



Find the value of each variable.

$3(4x-8) = 180$

$6y+3 = 8y-5$

$-6y \quad -6y$

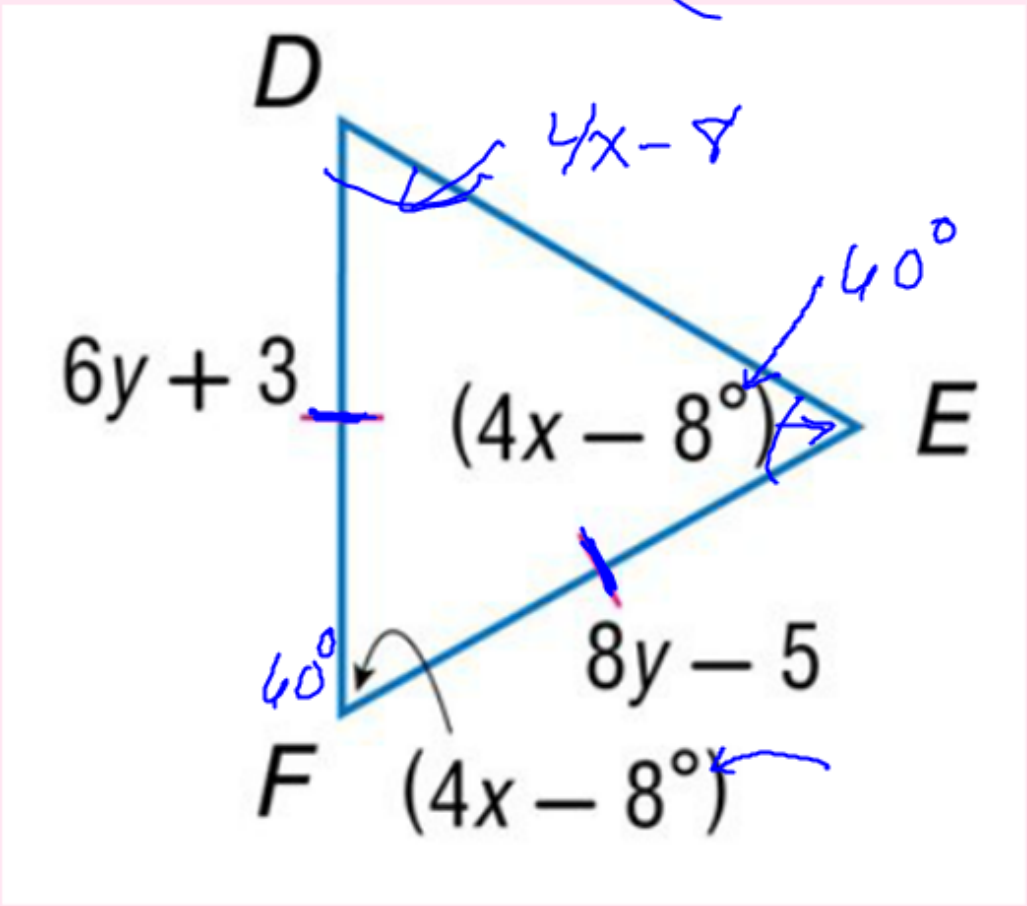
$3 = 2y - 5$

$+5 \quad +5$

$8 = 2y$

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

$4 = y$



$(4x-8)^\circ = 60$

$+8 \quad +8$

$4x = 68$

$\frac{4x}{4} = \frac{68}{4}$

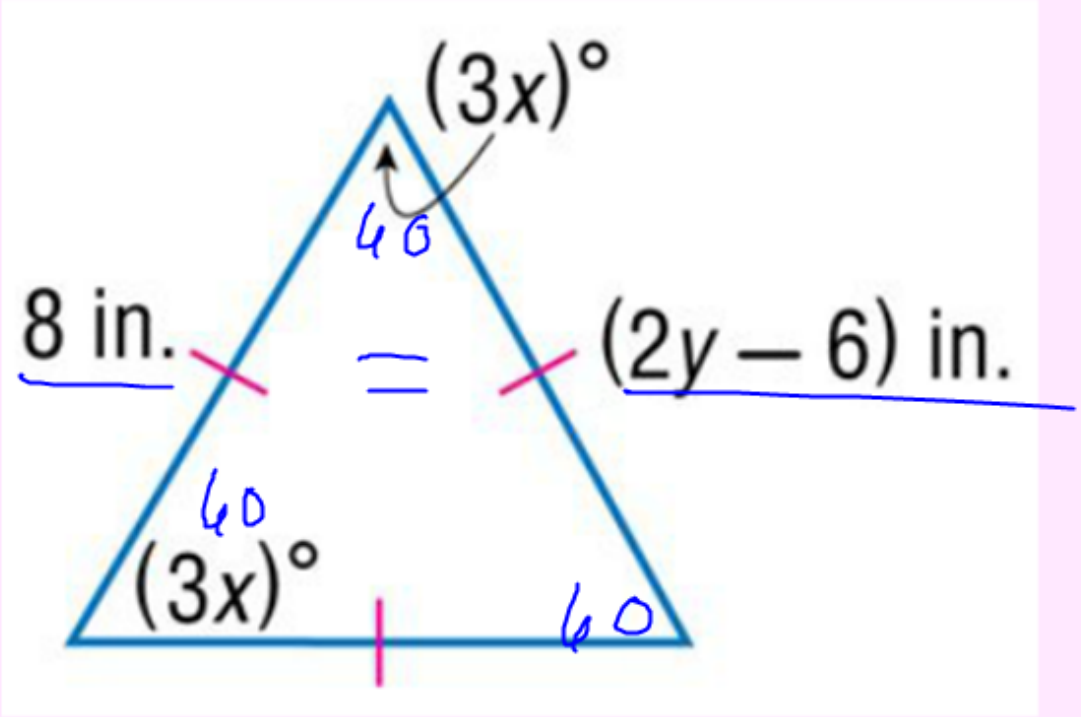
$x = 17$

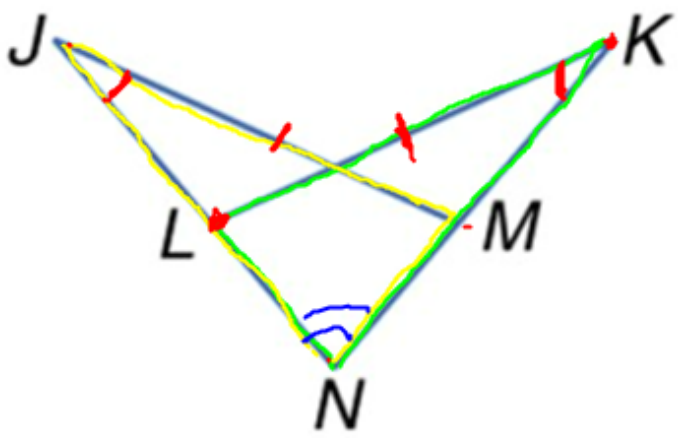
Find the value of each variable.

$8 = 2y - 4$

$\frac{3x}{3} = \frac{60}{3}$

$x = 20$





Given: $\angle NKL \cong \angle NJM$ (A)

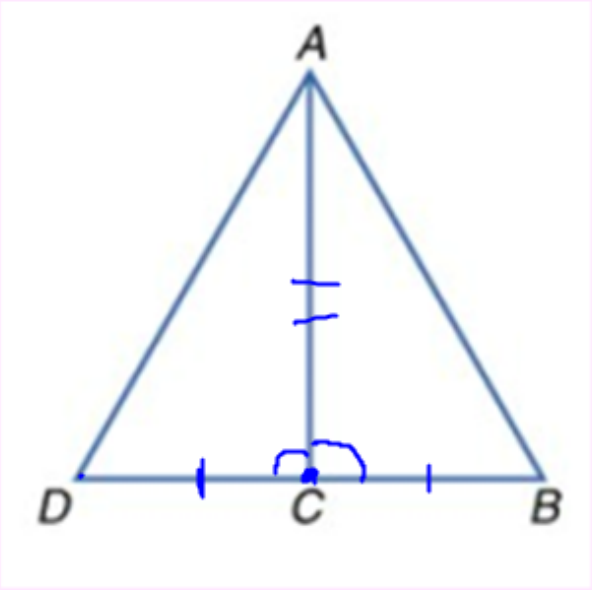
$\overline{KL} \cong \overline{JM}$ (S)

Prove

Can we show that $\Delta NKL = \Delta NJM$

Statements	Reasons
a) $\angle NKL \cong \angle NJM$ (A) $\overline{KL} \cong \overline{JM}$ (S)	a) Given
b) $\angle N \cong \angle N$ (A)	b) Reflexive
c) $\Delta NKL \cong \Delta NJM$	c) AAS

Given: C is the midpoint of $\overline{DB}$; $\angle ACB \cong \angle ACD$.



What postulate proves that $\Delta ABC \cong \Delta ADC$?

$\overline{DC} \cong \overline{BC}$ (S)

$\overline{CA} \cong \overline{CA}$ (S)

SAS