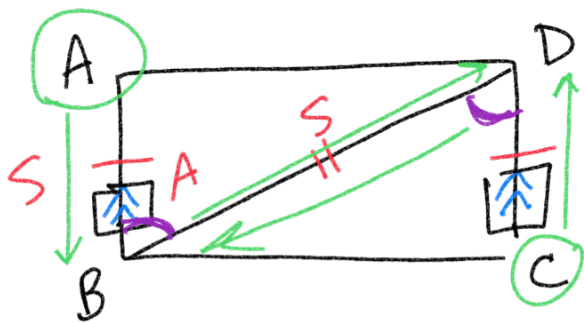


W-6 Geometry Week 21



Given  
 $\overline{AB} \cong \overline{DC}$   
 $\overline{AD} \parallel \overline{BC}$   
 parallel lines

Prove  
 $\overline{AD} \cong \overline{BC}$

Statement

$\overline{AB} \cong \overline{DC}$   
 $\overline{AD} \parallel \overline{BC}$

Reason

Given  
 Given

Reflexive Property

Alternate Interior Angles

SAS

CPCTC

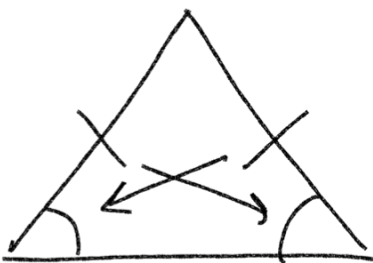
$\overline{BD} \cong \overline{DB}$

$\angle ABD \cong \angle CDB$

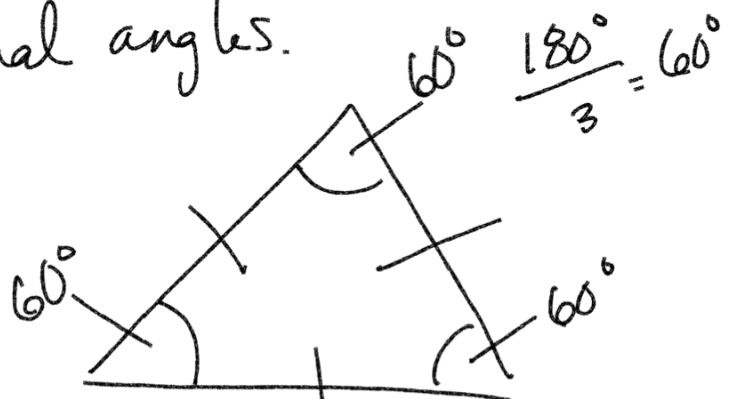
$\triangle ABD \cong \triangle CDB$

$\overline{AD} \cong \overline{BC}$

Equal sides open from  
 Equal angles.

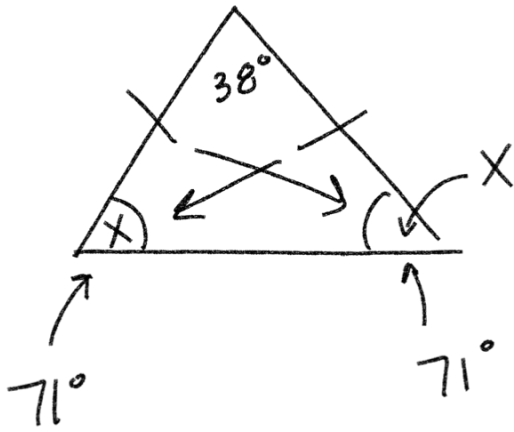


Isosceles Triangle  
 Two equal sides  
 Two equal angles



Equilateral Triangle  
 Three equal sides  
 Three equal angles

# Isosceles Triangle

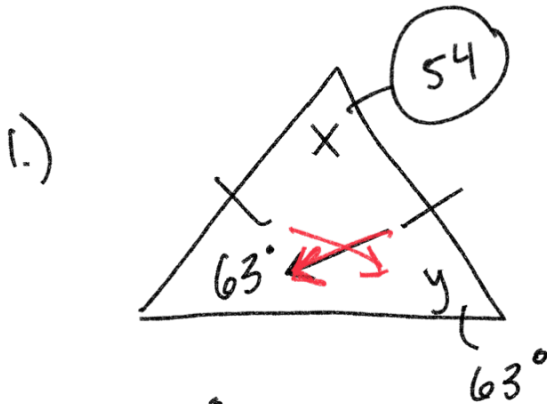


$$180^\circ = 38^\circ + X + X$$

$$180^\circ = 38^\circ + 2X$$
$$\begin{array}{r} -38 \\ -38 \end{array}$$

$$\frac{142}{2} = \frac{2X}{2}$$

$$X = 71^\circ$$



$$y = 63^\circ$$

$$180 = 63 + 63 + X$$

$$180 = 126 + X$$
$$\begin{array}{r} -126 \\ -126 \end{array}$$

$$54 = X$$



$$180^\circ = 42^\circ + X + X$$

$$180^\circ = 42^\circ + 2X$$
$$\begin{array}{r} -42 \\ -42 \end{array}$$

$$\frac{138}{2} = \frac{2X}{2}$$

$$X = 69$$

Assignment

Find the value of x.

1) **Supplement**  
**Linear pairs**

$180 = 44 + x$   
 $-44 \quad -44$   
 $136 = x$

$180 = 67 + 67 + a$   
 $180 = 134 + a$   
 $-134 \quad -134$   
 $46 = a$

$90 - 46 = 44$

2)

$180 = 70 + a + 70$   
 $180 = 140 + a$   
 $-140 \quad -140$   
 $40 = a$

$90 - 40 = 50$

**Linear Pair  $\rightarrow 180^\circ$**   
 $180 = x + 50$   
 $-50 \quad -50$   
 $x = 130^\circ$

3)

**Linear pair**  
 $180 = 120 + a$   
 $-120 \quad -120$   
 $60 = a$

**Vertical angles**  
 $60 = a$

4)

$90 - 34 = 56$

**Linear pair**  
 $180 = 73 + 73 + a$   
 $180 = 146 + a$   
 $-146 \quad -146$   
 $34 = a$

$180 = 56 + 56 + x$   
 $180 = 112 + x$   
 $-112 \quad -112$   
 $x = 68^\circ$

