

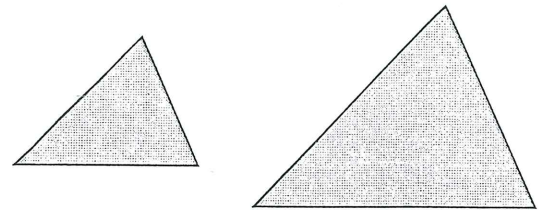
Name: Key

**Triangle Similarity**

**Angle Angle Similarity:**

AA~

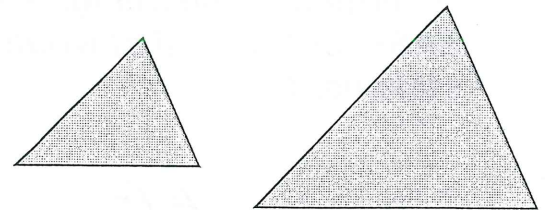
If 2 angles of one triangle are congruent to 2 angles of another triangle, then the triangles are similar.



**Side Side Side Similarity:**

SSS~

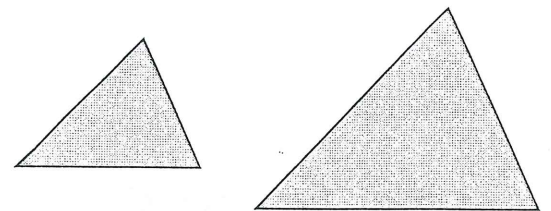
If corresponding sides of two triangles are proportional, then the two triangles are similar.



**Side Angle Side Similarity:**

SAS~

If an angle of one triangle is congruent to an angle of another triangle and the sides including those angles are in proportion, then the triangles are similar.



**Guided Practice**

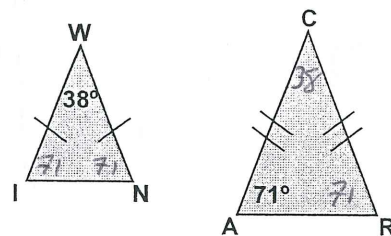
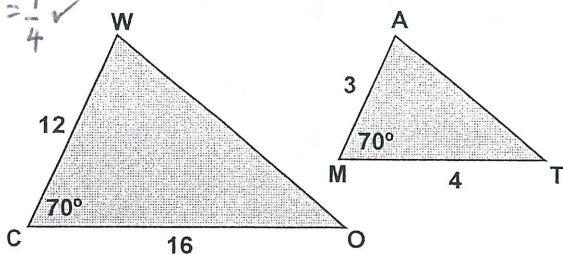
1. Reason: SAS

2. Reason: AA

$\Delta WCO \sim \Delta AMT$

$\Delta WIN \sim \Delta CAR$

$\frac{3}{12} = \frac{4}{16} = \frac{1}{4} \checkmark$

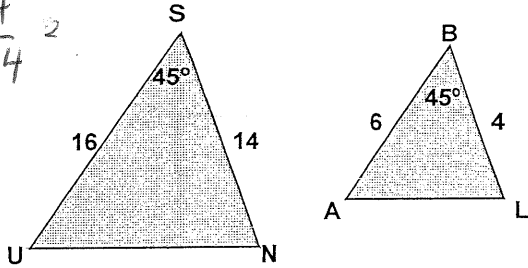


3. Reason: NOT similar

$\Delta$  \_\_\_\_\_  $\sim$   $\Delta$  \_\_\_\_\_

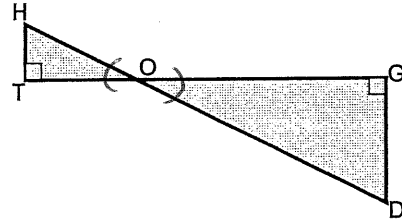
$$\frac{6}{16} = \frac{4}{14} \quad ?$$

$$\frac{3}{8} \neq \frac{2}{7}$$



4. Reason: AA

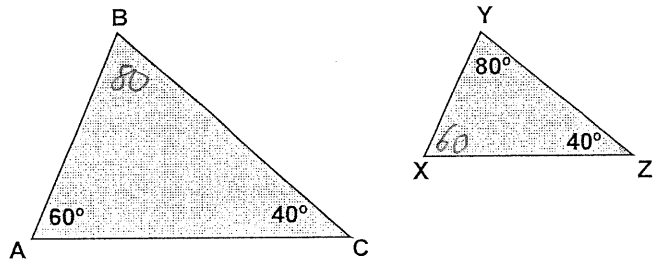
$\Delta$  HOT  $\sim$   $\Delta$  DOG



Determine if the triangles are similar. If so, state the reason (AA~, SAS~, or SSS~) that would prove this and then complete the similarity statement.

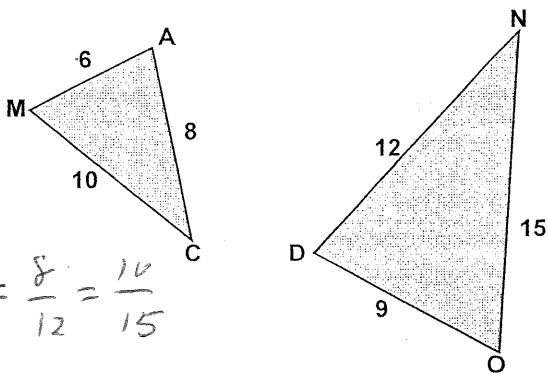
1. Reason: AA

$\Delta$  ABC  $\sim$   $\Delta$  XYZ



2. Reason: SSS

$\Delta$  MAC  $\sim$   $\Delta$  ODN

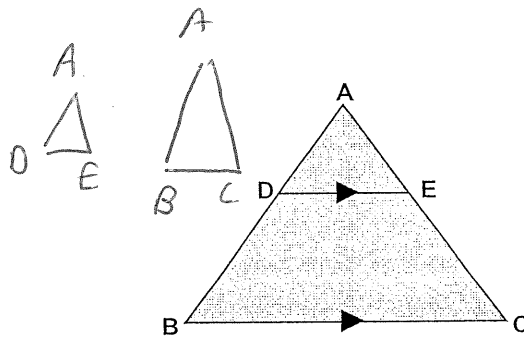


$$\frac{6}{9} = \frac{8}{12} = \frac{10}{15}$$

$$\frac{2}{3} = \frac{2}{3} = \frac{2}{3} \quad \checkmark \quad SSS$$

3. Reason: AA

$\Delta$  ADE  $\sim$   $\Delta$  ABC

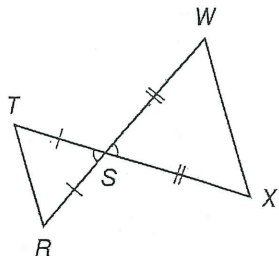


# 7-3 Skills Practice

## Similar Triangles

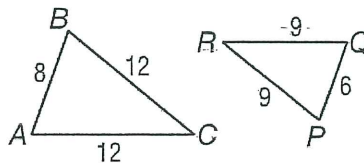
Determine whether each pair of triangles is similar. If so, write a similarity statement. If not, what would be sufficient to prove the triangles similar? Explain your reasoning.

1.



**SAS**

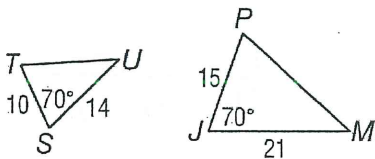
2.



$$\frac{6}{8} = \frac{9}{12} = \frac{3}{4} \checkmark$$

$$\frac{3}{4} = \frac{3}{4} = \frac{3}{4} \quad \text{SSS}$$

3.

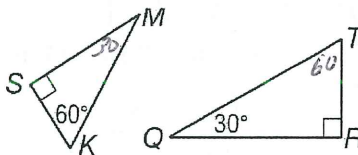


$$\frac{10}{15} = \frac{14}{21}$$

$$\frac{2}{3} = \frac{2}{3} \checkmark$$

**SAS**

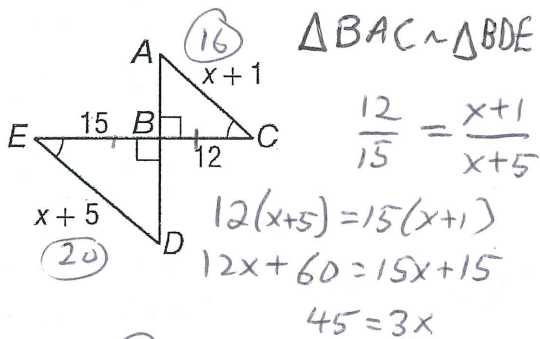
4.



**AA**

ALGEBRA Identify the similar triangles. Then find each measure.

5. AC



$\Delta BAC \sim \Delta BDE$

$$\frac{12}{15} = \frac{x+1}{x+5}$$

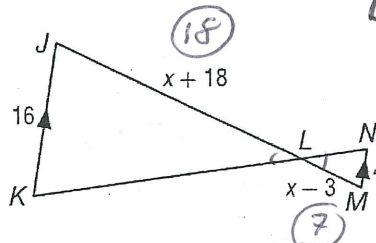
$$12(x+5) = 15(x+1)$$

$$12x + 60 = 15x + 15$$

$$45 = 3x$$

**x=15**

6. JL



$\Delta LJK \sim \Delta LMN$

$$\frac{x+18}{x-3} = \frac{16}{4}$$

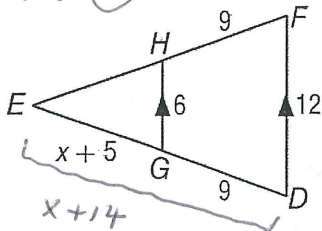
$$4(x+18) = 16(x-3)$$

$$4x + 72 = 16x - 48$$

$$120 = 12x$$

$$10 = x$$

7. EH = 45 = 9



$\Delta EGH \sim \Delta EDF$

$$\frac{6}{12} = \frac{x+5}{x+14}$$

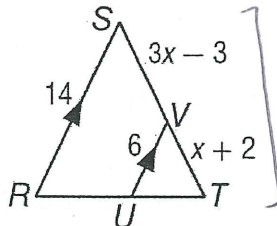
$$6(x+14) = 12(x+5)$$

$$6x + 84 = 12x + 60$$

$$24 = 6x$$

$$4 = x$$

8. VT



$$x+2 \neq 3x-3$$

$$= 4x-1$$

$$\frac{6}{14} = \frac{x+2}{4x-1}$$

$$6(4x-1) = 14(x+2)$$

$$24x - 6 = 14x + 28$$

$$10x = 34$$

$$x = 3.4$$

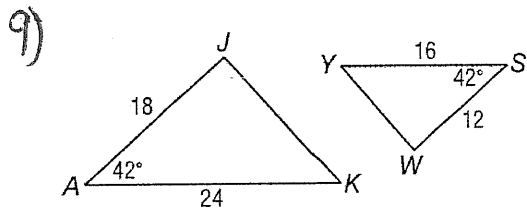
$$VT = 3.4 + 2$$

**VT = 5.4**

# 7-3 Practice

## Similar Triangles

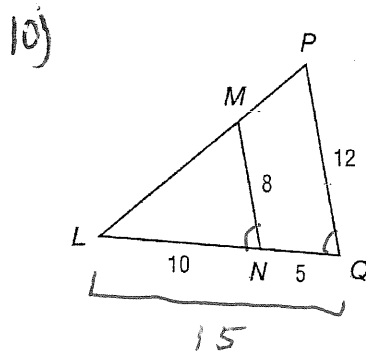
Determine whether the triangles are similar. If so, write a similarity statement. If not, what would be sufficient to prove the triangles similar? Explain your reasoning.



$$\frac{12}{18} = \frac{16}{24}$$

**SAS**

$$\frac{2}{3} = \frac{2}{3} \quad \Delta JAK \sim \Delta WSY$$

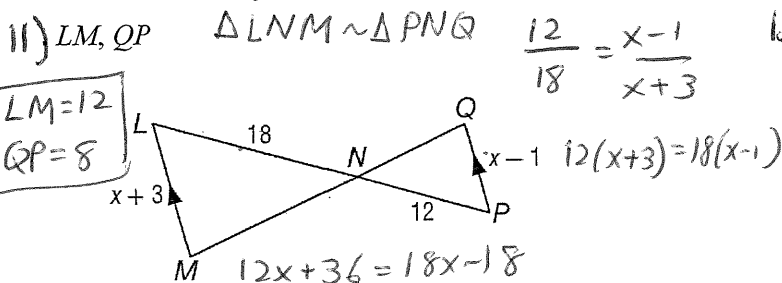


$$\frac{8}{12} = \frac{10}{15} = \frac{2}{3} \checkmark$$

**SAS**

$\Delta LNM \sim \Delta LQP$

ALGEBRA Identify the similar triangles. Then find each measure.



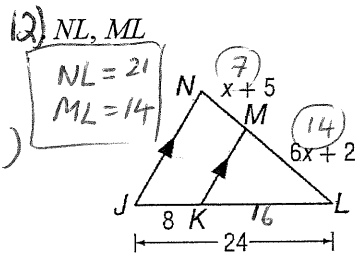
$$\frac{12}{18} = \frac{x-1}{x+3}$$

LM = 12  
QP = 8

$$12x + 36 = 18x - 18$$

$$54 = 6x$$

$$9 = x$$



$$\frac{16}{24} = \frac{6x+2}{7x+7}$$

$$\frac{2}{3} = \frac{6x+2}{7x+7}$$

$$2(7x+7) = 3(6x+2)$$

$$14x + 14 = 18x + 6$$

$$8 = 4x$$

$$2 = x$$

13) PS, PR

$$\frac{6}{x+7} = \frac{8}{2x+6}$$

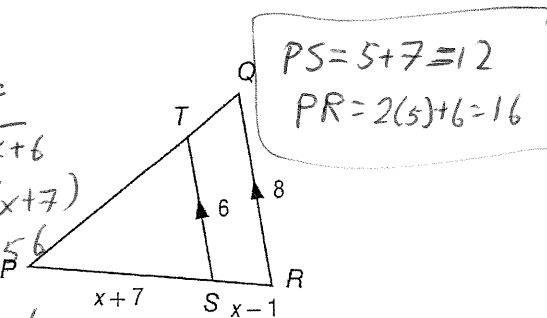
$$6(2x+6) = 8(x+7)$$

$$12x + 36 = 8x + 56$$

$$4x = 20$$

$$x = 5$$

$$2x + 6$$



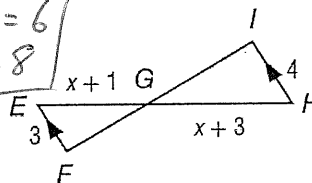
$$PS = 5 + 7 = 12$$

$$PR = 2(5) + 6 = 16$$

14) EG, HG

$$EG = 6$$

$$HG = 8$$



$$\frac{3}{4} = \frac{x+1}{x+3}$$

$$3(x+3) = 4(x+1)$$

$$3x + 9 = 4x + 4$$

$$5 = x$$

15) **INDIRECT MEASUREMENT** A lighthouse casts a 128-foot shadow. A nearby lamppost that measures 5 feet 3 inches casts an 8-foot shadow.

a. Write a proportion that can be used to determine the height of the lighthouse.

$$\frac{x}{63} = \frac{128}{8}$$

b. What is the height of the lighthouse?

$$8x = 8064$$

$$x = 1008 \text{ in.}$$

$$= 84 \text{ ft.}$$

