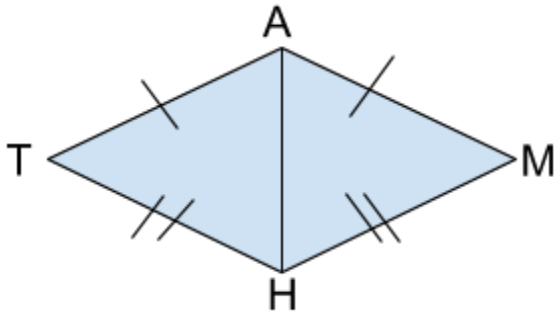
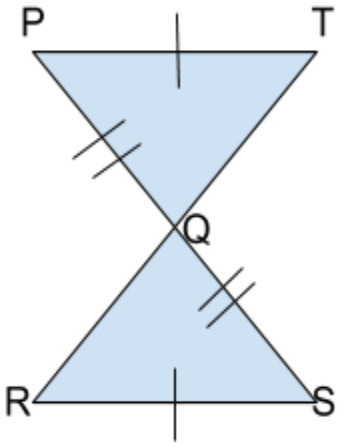
Warmup/Notes 11/10/20



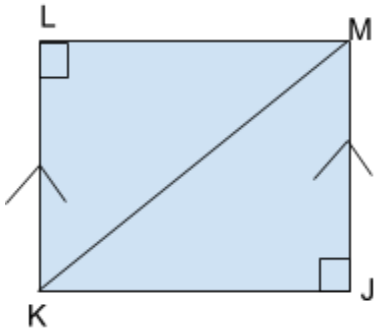
1. Explain why $< T \cong < M$?

Since AH is a shared side by reflexive it is congruent to by triangles. That makes the triangles congruent by SSS. By CPCTC <T congruent to <M



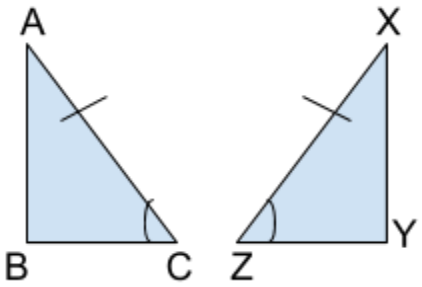
2. What would you need to know to prove these triangles congruent?

IF we knew that Q was the midpoint of RT, then RQ = TQ then the triangles are congruent by SSS



3. Explain why these triangles are congruent?

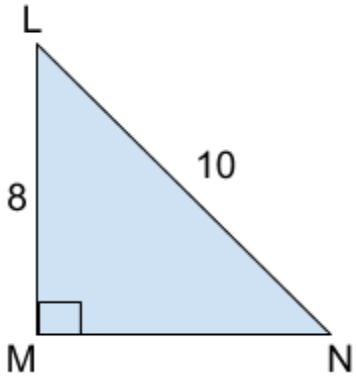
Since the given right angles are congruent and we have alternate interior angles congruent at <K and < M and KM is congruent by reflexive property the triangles are congruent by AAS

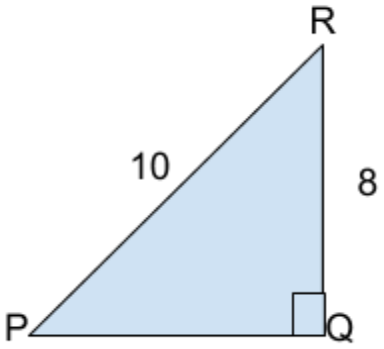


4. What other piece of information is necessary to prove $\Delta ABC \cong \Delta XYZ$

3 ways: a) IF < A was congruent to <X then ASA b) IF <B was congruent to <Y then AAS c) IF BC was congruent to YZ then SAS

Notes: Hypotenuse-Leg Theorem (HL)





Are the above triangles congruent? Why or why not?

Initially these triangles are not congruent because the information shows Angle-Side-Side. However, since these are right triangles, the PYTHAGOREAN Theorem can be used to find the missing side length.

$8^2 + b^2 = 10^2$

64 + $b^2 = 100$

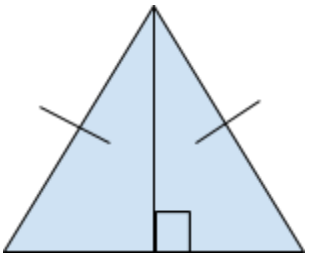
b^2 = 36

b = 6

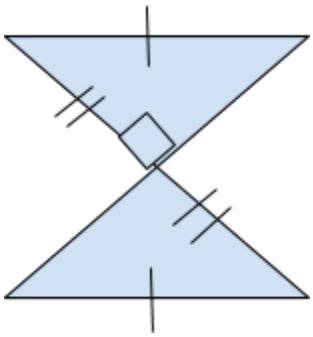
So the triangles bases would be “6” which then indicates the triangles are congruent by SSS.

What this examples tells us, if we are given a right triangle, a congruent hypotenuse and a congruent leg, the triangles are congruent by the Hypotenuse-Leg Theorem. (HL)

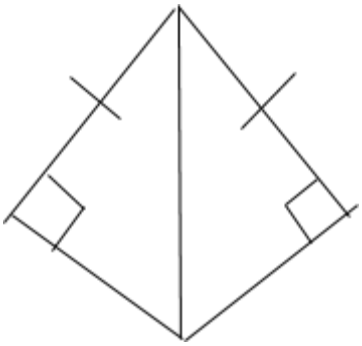
Congruent by HL? IF NO, explain why?



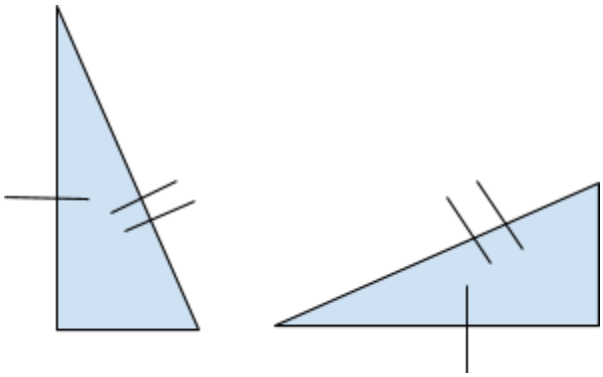
Since the line down the middle is congruent to both right triangles and its a leg, implies these right triangles are congruent by HL



Since vertical angles are congruent and you have a hypotenuse and a leg congruent, these right triangles are congruent by HL

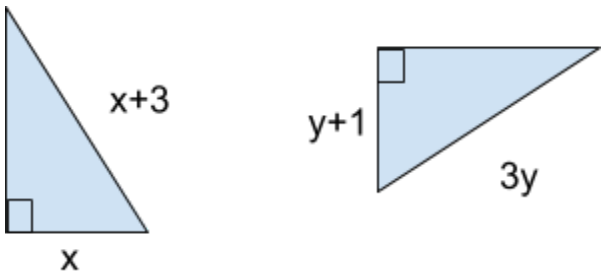


Since the line down the middle is congruent to both triangles and this line is the hypotenuse for both right triangles and you already have a congruent leg, these right triangles are congruent by HL



We don't know for certain that these triangles are right triangles because the right angle is NOT given, these triangles are not congruent by HL

Assume these triangles are congruent. Solve for x and y. Work is to the right.



Y + 5 = 3y+ x

Y - x = x + 5 get y by itself
Y = 2x + 5

Substitute 2nd equation into the first equation

2x + 5 + 5 = 3(2x + 5) + x
2x + 10 = 6x + 15 + x
2x + 10 = 7x + 15
-5 = 5x
-1= x

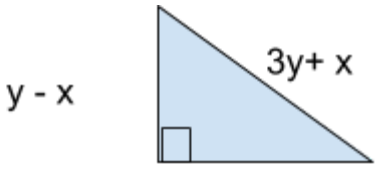
X = y + 1

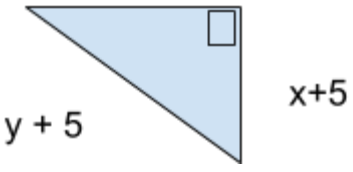
X + 3 = 3y

Substitute the first equation into the 2nd equation and solve for y.

Y + 1 + 3 = 3y
Y + 4 = 3y
4 = 2y
2 = y x = 2 + 1 = 3

Assume these triangles are congruent. Solve for x and y. Work is to the left.





Substitute x and solve for y y = -2 + 5 Y = 3 Check your answers!!!	