Unit 1C Study Guide

H Geom

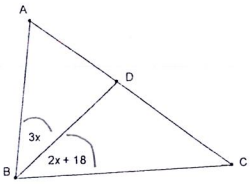
Name HWFR

Date _____

Always/Sometimes/Never

1. A median is an altitude Sometimes
2. Base angles in an isosceles triangle are congruent. Always
3. The incenter is on the exterior of the triangle. Never
4. A right triangle is also obtuse. Never
5. 2 triangles are congruent by AAA. Never

6. BD is an ∠bisector. Find the measure of ∠ABC:



$3x = 2x + 18$

$-2x \quad -2x$

$x = 18$

$\measuredangle ABD = 3(18) = 54^\circ$

SO

$\measuredangle ABC = 2 \cdot 54 = \boxed{108^\circ}$

7. Given that B, D, & F are midpoints, use the diagram at right to find the following lengths.

AB = 6

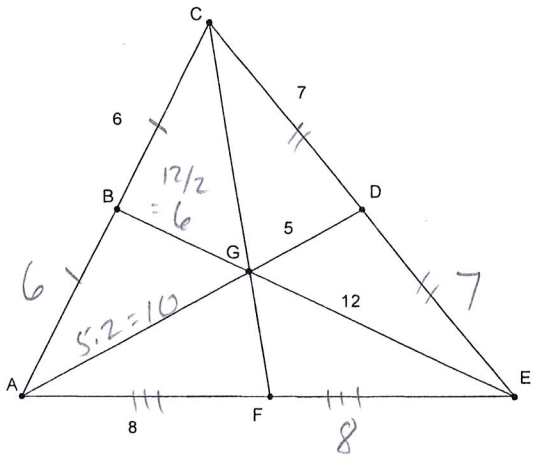
CE = 14

BG = 6

AG = 10

AD = 15

Perimeter of ΔACE = 42



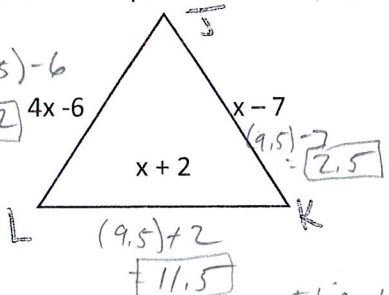
12/2 = 6

6 ✓

5.2 = 10

✓ 7

8. If the triangle below has a perimeter of 46, determine if it is scalene, isos, or equilateral.



5

4(9.5) − 6 = 32

(9.5) − 7 = 2.5

(9.5) + 2 = 11.5

$(4x - 6) + (x - 7) + (x + 2) = 46$

$6x - 11 = 46$

$6x = 57$

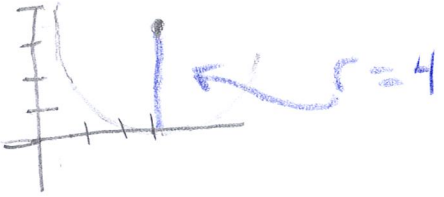
$x = 9.5$

It's looking Scalene

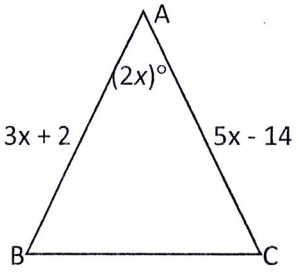
9. On the triangle back in #8, use the side lengths to list the angles in order from smallest to largest.

$JK < KL < JL$ so $\angle L < \angle J < \angle K$

10. The center of a circle is at (3, 4). The circle barely touches the x axis. How long is its radius?



11. FInd the measure of $\angle A$.

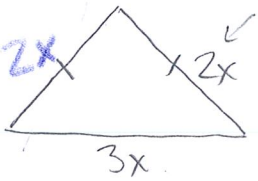


$3x+2 = 5x-14$
$-3x \quad -3x$
$2 = 2x - 14$
$+14 \quad +14$
$16 = 2x$
$8 = x$

So $\angle A = 2(8) = 16°$

12. The lengths of the base and a leg of an isosceles triangle are in the ratio 3:2. If the perimeter is 105, find the length of the base.

Both legs must be 2x.

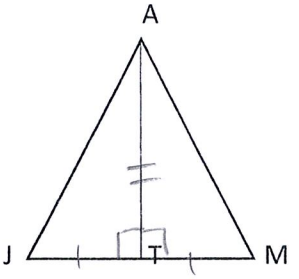


$2x + 2x + 3x = 105$
$7x = 105$
$x = 15$

Base $= 3(15) = 45$

13. Given: $\overline{AT}$ is a $\perp$ Bisector

Prove: ΔJAM is Isosceles

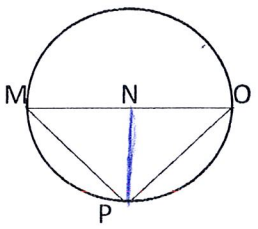


① $\overline{AT}$ is $\perp$ Bisector	① Given
② $\angle JTA$ & $\angle MTA$ Rt $\angle$s	② Def $\perp$ Bis
③ T midpt $\overline{JM}$	③ Def $\perp$ Bis
④ $\angle JTA \cong \angle MTA$	④ All Rt $\angle$s $\cong$
⑤ $\overline{JT} \cong \overline{TM}$	⑤ Def midpt
⑥ $\overline{AT} \cong \overline{AT}$	⑥ Reflx.
⑦ $\Delta JAT \cong \Delta MAT$	⑦ SAS (4,5,6)
⑧ $\overline{JA} \cong \overline{MA}$	⑧ CPCTC
⑨ ΔJAM Isos	⑨ Def Isos, Δ

14. Given: $\overline{PM} \cong \overline{PO}$

$\odot N$

Prove: $\Delta MNP \cong \Delta ONP$



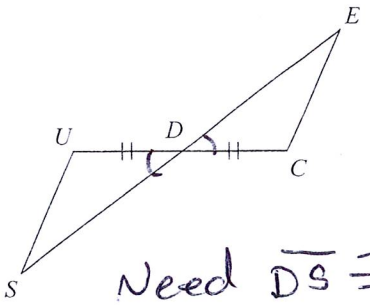
① $\odot N$, $\overline{PM} \cong \overline{PO}$	① given
② $\overline{MN} \cong \overline{NO}$	② All radii $\cong$
③ $\overline{NP} \cong \overline{NP}$	③ Reflx
④ $\Delta MNP \cong \Delta ONP$	④ SSS (1,2,3)

OR

① $\odot N$, $\overline{PM} \cong \overline{PO}$	① given
② $\angle M \cong \angle O$	② $\triangle \Rightarrow \triangle$
③ $\overline{MN} \cong \overline{NO}$	③ All radii $\cong$
④ $\Delta MNP \cong \Delta ONP$	④ SAS (1,2,3)

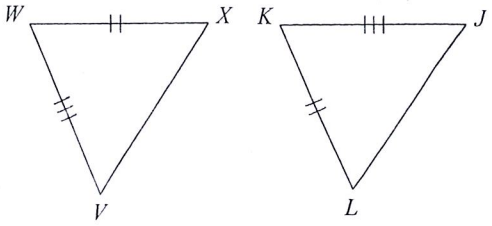
State what additional information is required in order to know that the triangles are congruent for the reason given.

11) SAS



Need $\overline{DS} \cong \overline{ED}$

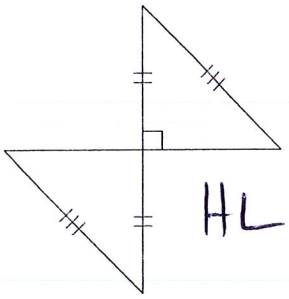
12) SAS



Need $\angle W \cong \angle K$

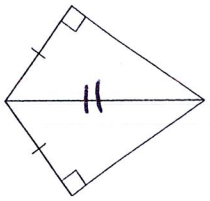
If the triangles can be shown congruent, state the rule that would show them so. If there's not enough information, then state that they're not congruent. No need to write a full congruent statement.

13)



HL

14)



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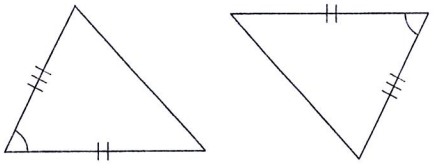
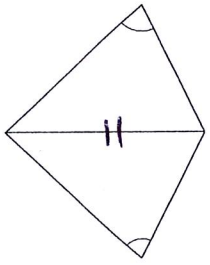
15)



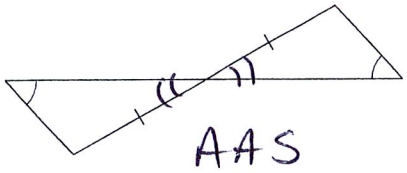
SAS

16)



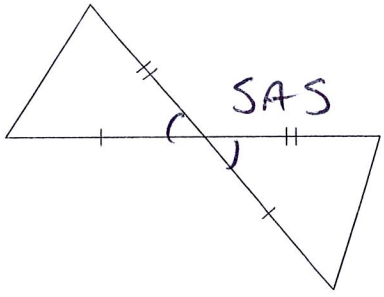
Not $\cong$

17)



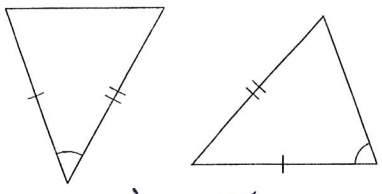
AAS

18)



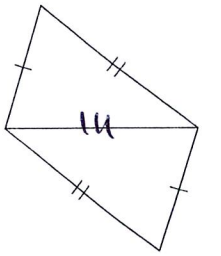
SAS

19)



Not $\cong$

20)



SSS