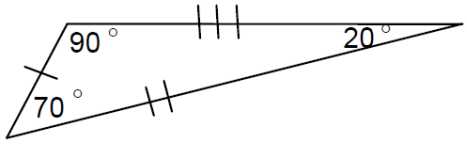
GEOMETRY – DAY 6 HOMEWORK NAME:

4.1-4.6 STUDY GUIDE

4.2/4.9 – CLASSIFY TRIANGLES

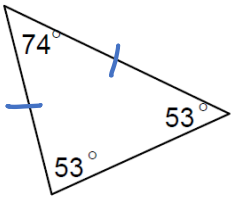
1. Classify each of the following triangles by sides and angles.

a) Sides: Scalene Angles: Right



b) Sides: Isosceles Angles: acute

If △, then △



2. Given △ABC: m∠A = (9x + 20)°, m∠B = (3x – 5)°, and m∠C = (6x + 3)°.
Find the measure of each angle and classify the triangle by the angles and sides.

$m\angle A + m\angle B + m\angle C = 180$

$9x+20+3x-5+6x+3=180$

$18x+18=180$

$x=9$

$m\angle A = 9(9)+20 = 101°$

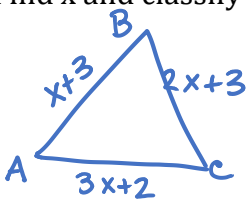
$m\angle B = 3(9)-5 = 22°$

$m\angle C = 6(9)+3 = 57°$

Angles → Obtuse

Sides → Scalene

3. The perimeter of △ABC is 20 cm. Let AB = x + 3, AC = 3x +2, and BC = 2x +3.
Find x and classify the triangle based on its sides.



$x+3+2x+3+3x+2=20$

$6x+8=20$

$6x=12$

$\boxed{x=2}$

$AB=5$

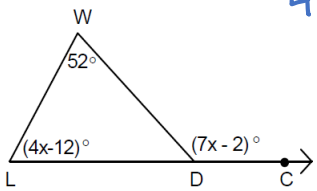
$AC=8$

$BC=7$

Sides → scalene

4.3 – EXTERIOR ANGLE THEOREM

4. Find m∠ WDC.



$4x-12+52=7x-2$

$4x+40=7x-2$

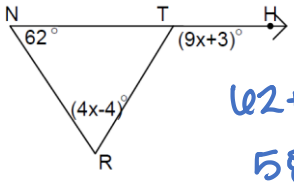
$42=3x$

$x=14$

$m\angle WDC = 7(14)-2$

$\boxed{m\angle WDC = 96°}$

5. Find m∠RTH.



$62+4x-4=9x+3$

$58+4x=9x+3$

$55=5x$

$x=11$

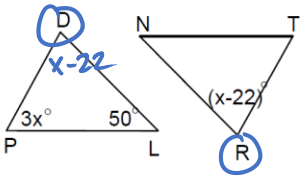
$m\angle RTH = 9(11)+3$

$=99+3$

$\boxed{m\angle RTH = 102°}$

4.4 – CONGRUENT TRIANGLES AND CORRESPONDING PARTS.

6. Given: △DPL ≅△RTN.
Find x.



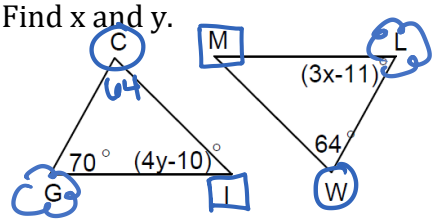
$3x+x-22+50=180$

$4x+28=180$

$4x=152$

$\boxed{x=38}$

7. Given: △GCI ≅△LWM.
Find x and y.



$3x-11=70$

$3x=81$

$\boxed{x=27}$

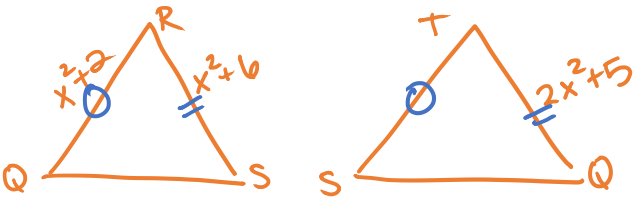
$70+64+4y-10=180$

$124+4y=180$

$4y=56$

$\boxed{y=14}$

8. Given △QRS≅△STQ. RS = $x^2 + 6$, TQ = $2x^2 + 5$, QR = $x^2 + 2$. Find x and ST.



$\overline{RS} \cong \overline{TQ}$

$x^2+6 = 2x^2+5$

$0 = x^2 - 1$

$0 = (x+1)(x-1)$

$\boxed{x = 1, -1}$

ST = QR

so... $QR = x^2+2$

For $x=1$; $QR = (1)^2+2$

$\boxed{QR = 3}$

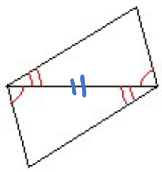
For $x=-1$; $QR = (-1)^2+2$

$QR = 3$

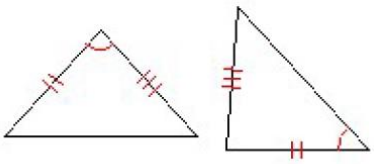
4.5/4.6 – PROVING CONGRUENT TRIANGLES.

There are 5 ways to proving triangles congruent: SSS, SAS, ASA, AAS, and HL.

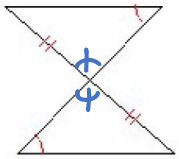
9. Write the postulate or theorem that proves the triangles congruent. If they are not congruent, write not congruent.



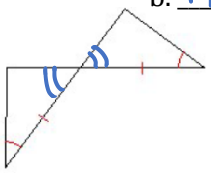
a. ASA



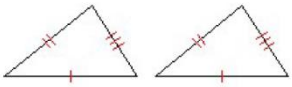
b. not ≅



c. AAS



d. ASA

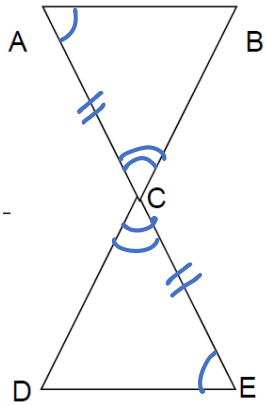


f. SSS

10. Given : ∠A ≅ ∠E

C is the midpoint of $\overline{AE}$

Prove: △ABC ≅△EDC

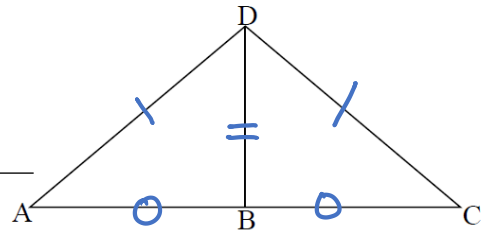


① ∠A ≅ ∠E (A)	① Given
② C is the midpt of $\overline{AE}$	② Given
③ $\overline{AC} \cong \overline{EC}$ (S)	③ If a pt is a midpt, then ÷'s seg into 2 ≅ segs.
④ ∠ACB ≅ ∠ECD (A)	④ If ∠s are vertical ∠s, then ∠s ≅.
⑤ △ABC ≅ △EDC	⑤ ASA (1, 3, 4)

11. Given : $\overline{AD} \cong \overline{CD}$

B is the midpoint of $\overline{AC}$

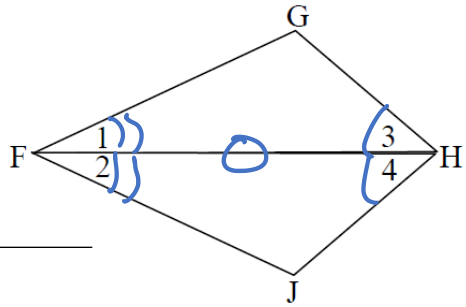
Prove: △ABD ≅△CBD



① $\overline{AD} \cong \overline{CD}$ (S)	① Given
② B is midpt of $\overline{AC}$	② Given
③ $\overline{AB} \cong \overline{CB}$ (S)	③ If a pt is a midpt, then it ÷s seg into 2 ≅ segs.
④ $\overline{DB} \cong \overline{DB}$ (S)	④ Reflexive Prop.
⑤ △ABD ≅ △CBD	⑤ SSS (1,3,4)

12. Given : $\overline{FH}$ bisects ∠GFJ and ∠GHJ

Prove: △GFH ≅△JFH



① $\overline{FH}$ bisects ∠GFJ & ∠GHJ	① Given
② ∠3 ≅ ∠4 (A)	② If a seg bisects an ∠, then ÷s ∠ into 2 ≅ ∠s
③ ∠1 ≅ ∠2 (A)	③ Same as #2
④ $\overline{FH} \cong \overline{FH}$ (S)	④ Reflexive Prop.
⑤ △GFH ≅ △JFH	⑤ ASA (2,4,3)

13. . Given : ∠G ≅ ∠R

∠GFO≅ ∠ROF

Prove: △FRO ≅ △OGF