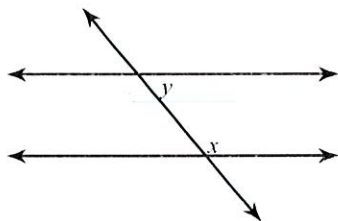


FINAL EXAM REVIEW DAY 2

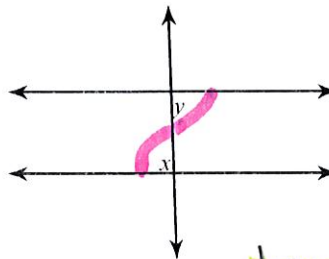
Identify each pair of angles as corresponding, alternate interior, alternate exterior, consecutive interior, or vertical.

1)



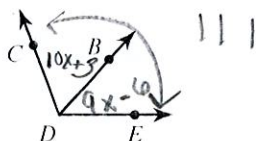
Consecutive Interior

2)



Alternate Interior

3) Find  $x$  if  $m\angle CDE = 111^\circ$ ,  
 $m\angle BDE = 9x - 6$ ,  
 and  $m\angle CDB = 10x + 3$ .



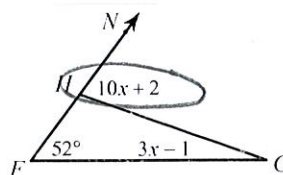
$$\underline{10x+3} + \underline{9x-6} = 111$$

$$\underline{19x-3} = \underline{111}$$

$$19x = 114$$

$$\boxed{x=6}$$

4)



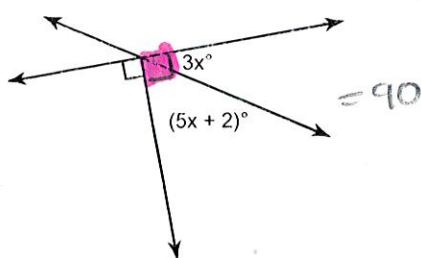
$$10x+2 = 52 + 3x - 1$$

$$\underline{10x+2} = \underline{51+3x}$$

$$\underline{7x+2} = \underline{51}$$

$$\underline{\frac{7x}{7}} = \underline{\frac{49}{7}} \quad \boxed{x=7}$$

5)



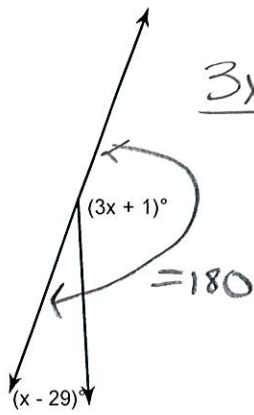
$$\underline{3x} + \underline{5x+2} = 90$$

$$\underline{8x+2} = \underline{90}$$

$$\underline{\frac{8x}{8}} = \underline{\frac{88}{8}} \quad \boxed{x=11}$$

Find the value of x.

6)



$$\underline{3x+1} + \underline{x-29} = 180$$

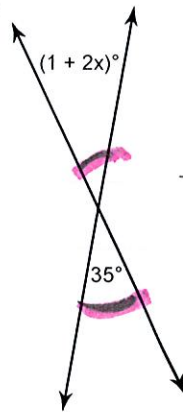
$$4x - 28 = 180$$

$$\quad \underline{+28} \quad \underline{+28}$$

$$\frac{4x}{4} = \frac{208}{4}$$

$$x = 52$$

7)



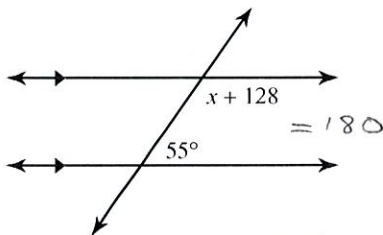
$$\cancel{1} + 2x = 35$$

$$\quad \quad \quad \underline{-1}$$

$$\frac{2x}{2} = \frac{34}{2}$$

$$x = 17$$

8)



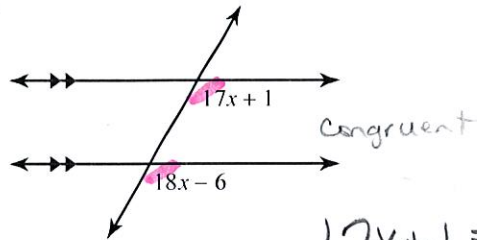
$$x + 128 + 55 = 180$$

$$x + 183 = 180$$

$$\quad \underline{-183} \quad \underline{-183}$$

$$x = -3$$

9)



$$17x + 1 = 18x - 6$$

$$\quad \underline{-1} \quad \quad \underline{-1}$$

$$17x = 18x - 7$$

$$\quad \underline{-18x} \quad \underline{-18x}$$

$$-1x = -7$$

$$x = 7$$

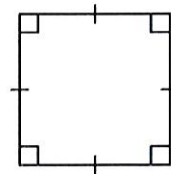
State all possible names for each figure.

10)



Quadrilateral

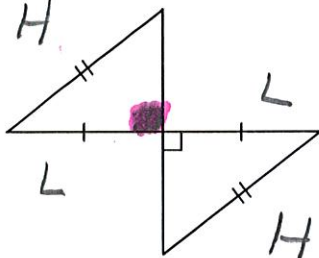
11)



Quadrilateral  
 Parallelogram  
 rhombus  
 rectangle  
 Square

State if the two triangles are congruent. If they are, state how you know.

12)



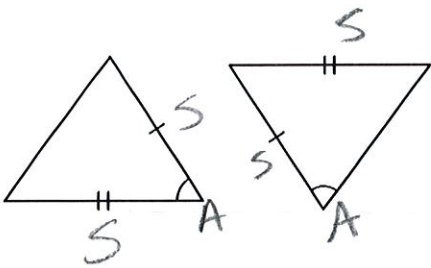
HL

13)



Not Congruent

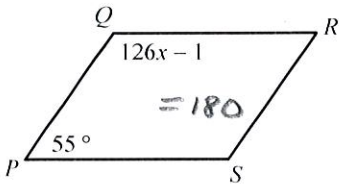
14)



Not Congruent

Solve for  $x$ . Each figure is a parallelogram.

15)



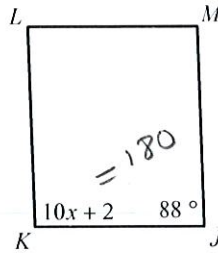
$$126x - 1 + 55 = 180$$

$$126x + 54 = 180$$

$$\begin{array}{r} 126x + 54 = 180 \\ -54 \quad -54 \\ \hline 126x = 126 \end{array}$$

$x = 1$

16)



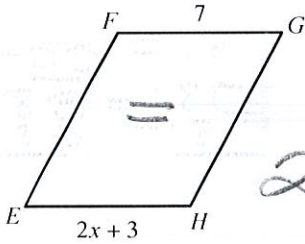
$$10x + 2 + 88 = 180$$

$$10x + 90 = 180$$

$$\begin{array}{r} 10x + 90 = 180 \\ -90 \quad -90 \\ \hline 10x = 90 \\ \frac{10x}{10} = \frac{90}{10} \\ x = 9 \end{array}$$

$x = 9$

17)



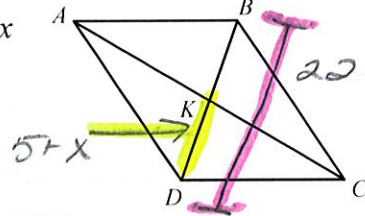
$$2x + 3 = 7$$

$$\begin{array}{r} 2x + 3 = 7 \\ -3 \quad -3 \\ \hline 2x = 4 \\ \frac{2x}{2} = \frac{4}{2} \\ x = 2 \end{array}$$

$x = 2$

18)  $BD = 22$

$KD = 5 + x$



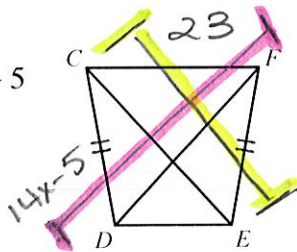
$$5 + x = 11$$

$$\begin{array}{r} 5 + x = 11 \\ -5 \quad -5 \\ \hline x = 6 \end{array}$$

$x = 6$

19)  $EC = 23$

$FD = 14x - 5$



$$14x - 5 = 23$$

$$\begin{array}{r} 14x - 5 = 23 \\ +5 \quad +5 \\ \hline 14x = 28 \\ \frac{14x}{14} = \frac{28}{14} \\ x = 2 \end{array}$$

$x = 2$

OR

$$5 + x + 5 + x = 22$$

$$2x + 10 = 22$$

$$\begin{array}{r} 2x + 10 = 22 \\ -10 \quad -10 \\ \hline 2x = 12 \\ \frac{2x}{2} = \frac{12}{2} \\ x = 6 \end{array}$$

$x = 6$

Two sides of a triangle have the following measures. Find the range of possible measures for the third side.

20) 10, 8

$$10 - 8 = 2$$

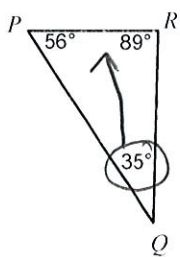
$$10 + 8 = 18$$

$2 < x < 18$



Order the sides of each triangle from shortest to longest.

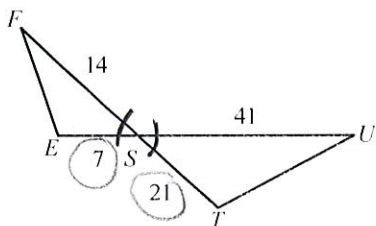
21)



$\overline{RP}, \overline{RQ}, \overline{QP}$

Determine whether the triangles are similar. If so, by what similarity postulate?

22)  $\triangle STU \sim \triangle SEF$

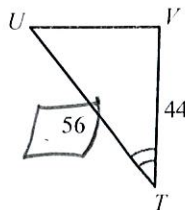


$$\frac{7}{21} \stackrel{?}{=} \frac{14}{41}$$

$$\frac{1}{3} \neq \frac{14}{41}$$

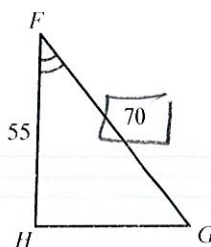
Not similar

23)  $\triangle FGH \sim \triangle TUV$



$\angle T \cong \angle F$

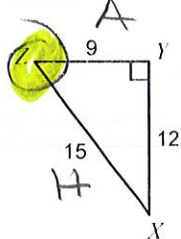
$$\frac{56}{70} \stackrel{?}{=} \frac{44}{55} \text{ yes}$$



SAS ~

For #24: Find the trig ratio. For #25-#28, solve for the missing side or missing angle.

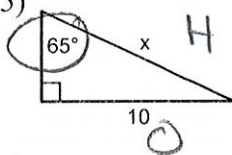
24)  $\cos Z$



$$\cos Z = \frac{9}{15}$$

$\frac{3}{5}$

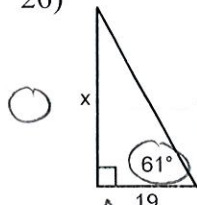
25)



$$\sin 65 = \frac{10}{x}$$

$$\frac{10}{\sin 65} = 11.0$$

26)

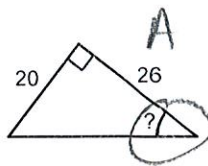


$$\tan 61 = \frac{x}{19}$$

$$19(\tan 61) = x$$

$$x = 34.3 \quad 34.27 = x$$

27)

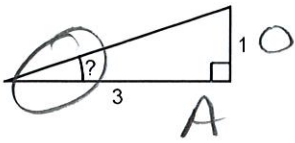


$$\tan x = \frac{20}{26}$$

$$x = 37.56 \sim$$

$38^\circ$

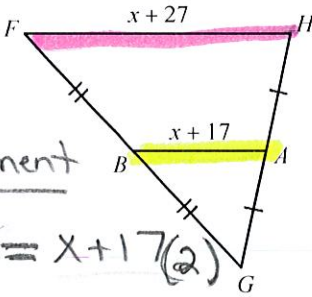
28)



$$\tan x = \frac{1}{3} = 18.43 = \boxed{18^\circ}$$

Solve for x. Midsegment =  $\frac{\text{Parallel Side}}{2}$

29)



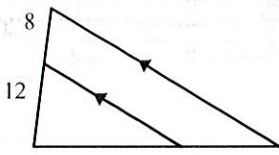
Midsegment

$$\frac{x+27}{2} = \frac{x+17}{2}$$

$$\begin{aligned} x+27 &= 2x+34 \\ -27 &\quad -27 \\ \hline x &= 2x+7 \\ -2x &\quad -2x \\ \hline -x &= 7 \end{aligned}$$

$$-x = 7 \implies x = -7$$

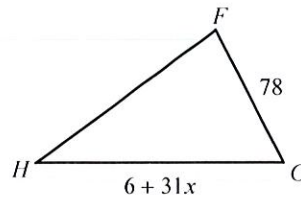
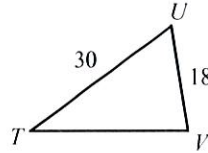
31)



$$\frac{12}{8} = \frac{2x}{21} \quad \text{or} \quad \frac{12}{21} = \frac{8}{2x}$$

$$\frac{24x}{24} = \frac{168}{24} \implies x = 7$$

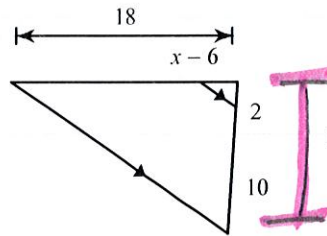
30)  $\triangle HGF \sim \triangle TUV$



$$\begin{aligned} \frac{18}{78} &= \frac{30}{6+31x} \\ 18(6+31x) &= 78(30) \\ 108 + 558x &= 2340 \\ -108 &\quad -108 \\ \hline 558x &= 2232 \\ \frac{558x}{558} &= \frac{2232}{558} \end{aligned}$$

$$x = 4$$

32)



$$10+2=12$$

$$\frac{x-6}{18} = \frac{2}{12}$$

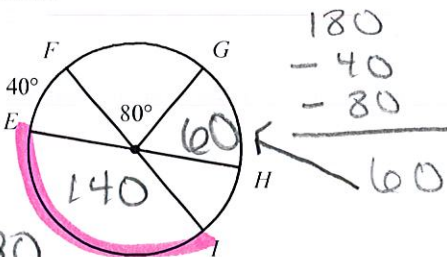
$$\begin{aligned} 12(x-6) &= 18(2) \\ 12x - 72 &= 36 \\ +72 &\quad +72 \\ \hline 12x &= 108 \end{aligned}$$

$$\frac{12x}{12} = \frac{108}{12}$$

$$x = 9$$

Find the measure of the arc or angle indicated. Assume that lines which appear to be diameters are actual diameters.

33)  $m\widehat{IE}$

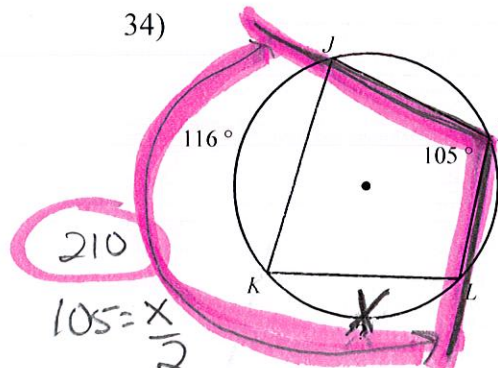


$$\begin{aligned} 180 \\ -40 \\ -80 \\ \hline 60 \end{aligned}$$

$$\begin{aligned} 40 + x &= 180 \\ -40 &\quad -40 \\ \hline x &= 140 \end{aligned}$$

$$140^\circ$$

34)



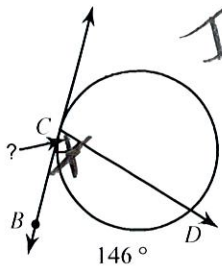
$$\begin{aligned} 210 \\ 105 &= \frac{x}{2} \\ 2(105) &= x \\ 210 &= x \end{aligned}$$

$$\begin{aligned} 210 \\ -116 \\ \hline 94 \end{aligned}$$

$$x = 94^\circ$$



35)

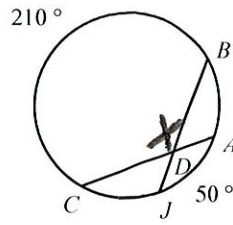


Inscribed Angle

$$X = \frac{146}{2}$$

$$X = 73^\circ$$

36)



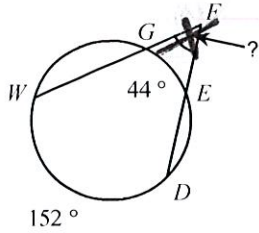
Vertex Inside

$$X = \frac{50 + 210}{2}$$

$$X = \frac{260}{2}$$

$$X = 130^\circ$$

37)



$$X = \frac{152 - 44}{2}$$

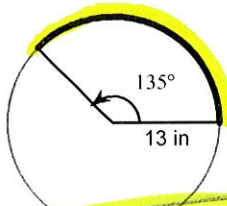
$$X = \frac{108}{2}$$

$$X = 54^\circ$$

Vertex Outside

Find the arc length.

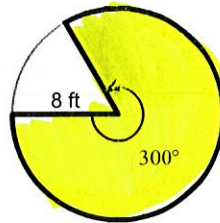
38)



$$A_L = \frac{2\pi(13)(135)}{360}$$

$$A_L = \frac{39\pi}{4} \text{ in}$$

39)



$$A_S = \frac{\pi(8)^2 300}{360}$$

$$A_S = \frac{160\pi}{3} \text{ ft}^2$$

Area Sector :

40) area =  $81\pi \text{ mi}^2$

(Find circumference)

$$\frac{81\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{81} = \sqrt{r^2}$$

$$r = 9$$

so

$$2\pi(9) = 18\pi \text{ mi}$$

41) circumference =  $12\pi \text{ yd}$

(Find radius)

$$\frac{2\pi r}{2\pi} = \frac{12\pi}{2\pi}$$

$$r = 6 \text{ yd}$$

Find diameter

42) area =  $36\pi \text{ mi}^2$

$$\frac{36\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{36} = \sqrt{r^2}$$

$$r = 6 \text{ so } 2(6) = 12 \text{ mi}$$