

Geometry Review for Learning Check 4

1. Write an equation of a line parallel to  $5x+2y=11$  through the point  $(4, -3)$ .

$$5x+2y=11 \quad m = -\frac{5}{2}$$

$$2y = -5x + 11 \quad \parallel m = -\frac{5}{2}$$

$$y = -\frac{5}{2}x + 11$$

$$y = mx + b$$

$$-3 = -\frac{5}{2}(4) + b$$

$$y = -\frac{5}{2}x + 7$$

$$-3 = -10 + b$$

$$7 = b$$

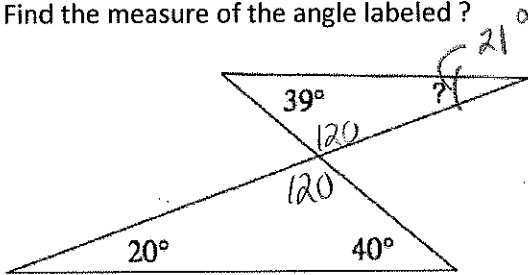
2. Are the lines parallel, perpendicular or neither? Explain.

$$2x+3y=7 \quad 3y = -2x+7 \quad y = -\frac{2}{3}x + \frac{7}{3}$$

$$-6x+4y=15 \quad 4y = 6x+15 \quad y = \frac{3}{2}x + \frac{15}{4}$$

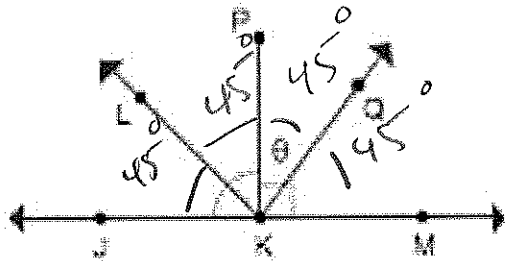
perpendicular b/c the slopes are opposite reciprocals

3. Find the measure of the angle labeled ?



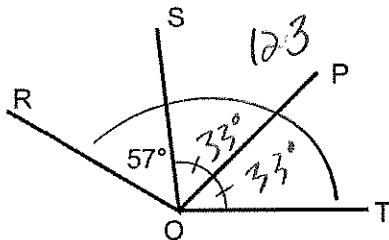
$$180 - (120 + 39) = 21^\circ$$

4. LK bisects  $\angle JKP$  and QK bisects  $\angle PKM$ . Find the measure of  $\angle PKQ$ .



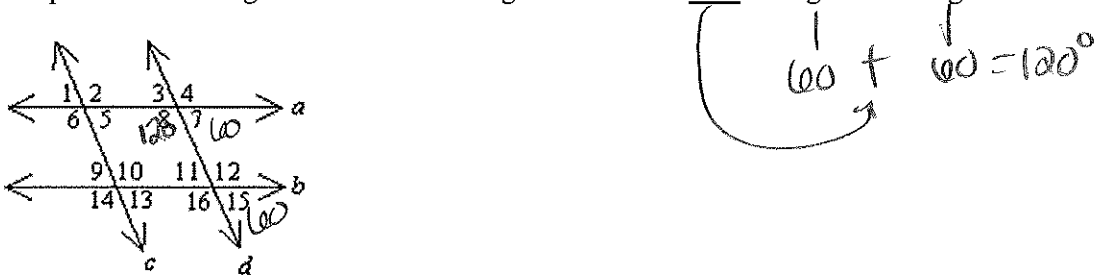
$$45^\circ$$

5.  $\angle ROT = 123$  degrees. Find the measure of  $\angle SOP$  and  $\angle POT$ .



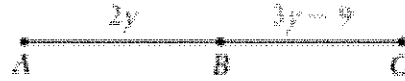
$$123 - 57 = 66 = 2 \times 33$$

6. In the picture below angle 8 measures 120 degrees. Find the sum of angle 7 and angle 15.



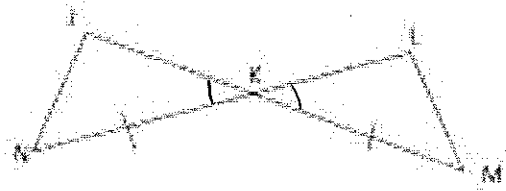
7. **Given:** B is the midpoint of AC

**Prove:**  $y=9$



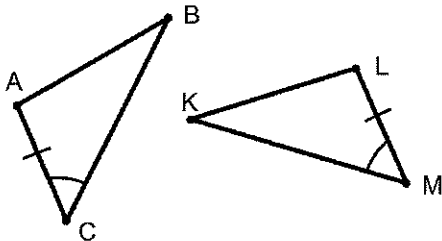
Statements	Reasons
1.) B is the midpoint of AC	1.) given
2.) $AB = BC$	2.) def of midpoint
3.) $2y = 3y - 9$	3.) substitution
4.) $-y = -9$	4.) subtraction Prop. of Eq.
5.) $y = 9$	5.) Division Prop. of Eq.

8. What other information do you need to prove the triangles are congruent using ASA?



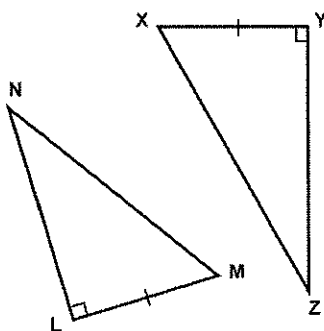
you need to know that  $\angle N$  is congruent to  $\angle M$ .

9. What other information do you need to prove the triangles are congruent by SAS?



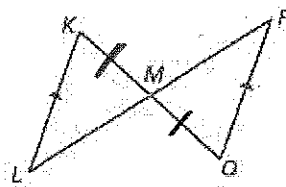
you need to know  $\overline{BC} \cong \overline{KM}$

10. What other information do you need to prove the triangles are congruent by HL?



you need to know  $\overline{XZ} \cong \overline{NM}$

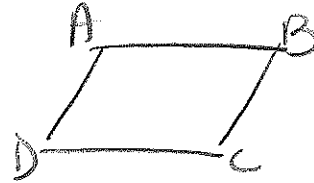
11. M is the midpoint of KQ. What 2 congruence theorems could be used to prove the triangles are congruent? Explain.



ASA or  
AAS

12. Draw a parallelogram ABCD.

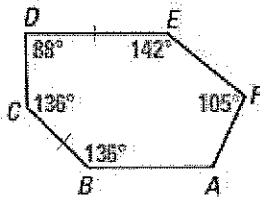
- a. Which pairs of angles are congruent?  $A+C, B+D$   
 b. Which pairs of angles are supplementary?  $B+C, C+D, D+A, A+B$



13. What is the sum of the measures of the exterior angles in a triangle? In a pentagon?  
 Sum of ext = 360 always                      360                      360

14. What is the sum of the measures of the interior angles in a triangle? In a pentagon?  
 Sum of int =  $(n-2)180$                       180                      540

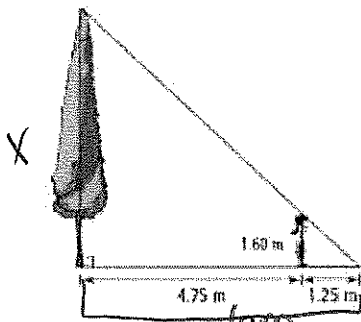
15. Find the measure of angle A. 6 sides       $(6-2)180 = 720^\circ = \text{sum of angles}$



$$\angle A = 720 - (88 + 136 + 136 + 105 + 142) = 113^\circ$$

- 16.

Erin, who is 1.60 m tall, casts a shadow that is 1.25 m long. Her shadow extends to the end of a tree's shadow when she stands 4.75 m from the tree. What is the height of the tree?

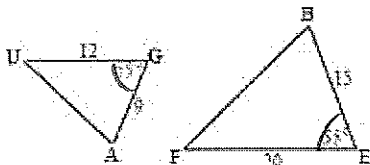


$$\frac{X}{1.60} = \frac{6}{1.25}$$

$$9.6 = 1.25X$$

$$X = 7.68 \text{ m}$$

17. Are the triangles similar? Explain.



$$\frac{15}{9} = \frac{5}{3}$$

$$\frac{20}{12} = \frac{5}{3}$$

Yes by SAS

closer b/c  $\sqrt{10}$  is less than  $4\sqrt{2}$ .

18. Suppose you live at point (1,3) on a coordinate grid. There are two chic fi la's located near your house. One is at (-2,4) and the other is at (5,7). Which one is closer?

$$d_1 = \sqrt{(3-4)^2 + (1-(-2))^2}$$

$$= \sqrt{(-1)^2 + (3)^2}$$

$$= \sqrt{10} - \text{closer}$$

$$d_2 = \sqrt{(7-3)^2 + (5-1)^2}$$

$$= \sqrt{4^2 + (4)^2}$$

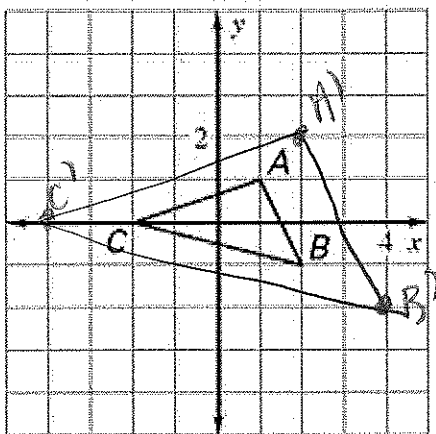
$$= \sqrt{32}$$

$$= 4\sqrt{2}$$

19. Find the midpoint of (5,7) and (1,3).

$$\left( \frac{5+1}{2}, \frac{7+3}{2} \right) = (3, 5)$$

20. Dilate the given triangle by a scale factor of 2. Give the coordinates for the new triangle A'B'C' and graph the image.



$$A (1, 1)$$

$$B (2, -1)$$

$$C (-2, 0)$$

$$A' (2, 2)$$

$$B' (4, -2)$$

$$C' (-4, 0)$$

21. Explain why ABC and A'B'C' (from question 20) are similar using similarity criteria.

all of the side lengths are doubled so the  $\Delta$ 's are similar by SSS similarity so the ratio of each pair of corresponding sides is 2.