Pre-AP Geometry – Chapter 6 Test Review

Standards/Goals:

- ✓ **D.2.b./G.CO.12.:**
  - **I can solve problems with triangles that involve a mid-segment.**
  - **I can identify medians, altitudes, perpendicular bisectors, and angle bisectors of triangles and use their properties to solve problems.**
- ✓ **G.1.b.: I can use the midpoint and distance formulas to solve problems.**
- ✓ **D.2.c.: I can apply the triangle inequality theorem to determine if a triangle exists and the order of sides and angles.**
- ✓ **C.1.e./G.CO.9/10.: I can prove theorems in proofs about triangles.**
- ✓ **C.1.f.: I can prove that two triangles are congruent by applying the SSS, SAS, ASA, and AAS congruence statements.**
- ✓ **C.1.g.: I can use the principle that corresponding parts of congruent triangles are congruent to solve problems.**
- ✓ **D.1.e./F.IF.7a:**
  - ***I can write AND graph linear equations in slope intercept form when given two points, when given a point and the slope.***
  - ***I can graph linear equations using slope intercept form as a guide.***
- ✓ **D.1.e./ F.LE.2.: I can write and graph linear equations in point-slope form and standard form.**
- ✓ **D.2.h./ A.CED.2.: I can write a linear equation using its x and y intercepts.**
- ✓ **D.2.g./G.GPE.5.: I can understand the relationship between slope and its application to the idea of both parallel and perpendicular lines.**

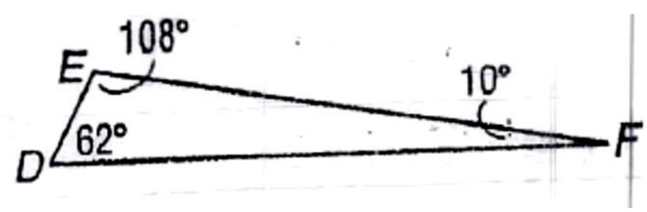
IMPORTANT VOCABULARY

Midsegment	Triangle Midsegment Theorem	Angle Bisector	Perpendicular Bisector	Perpendicular Bisector Theorem	Equidistant	Angle Bisector Theorem
Concurrent Lines	Point of concurrency	Circumcenter	Circumcenter Theorem	Incenter	Incenter Theorem	Altitude
Median	Centroid	Centroid Theorem	Orthocenter	Triangle Inequality Theorem	SAS Inequality Theorem (Hinge Theorem)	SSS Inequality Theorem (Converse of Hinge Theorem)
Exterior Angle Inequality Theorem	Isosceles Triangle Theorem	Scalene Triangle Theorem	Equilateral Triangle Theorem	Congruent Triangles	Transitive Property of Inequality	SSS, ASA, SAS, AAS, CPCTC

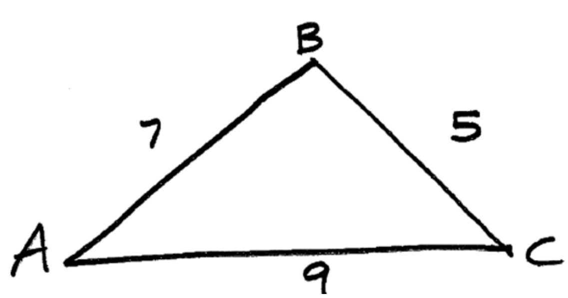
#1. Multiple Choice: In ΔXYZ, XY = 10 and XZ = 14. Which measure ***cannot*** be YZ?

a. 18
b. 20
c. 9
d. 4

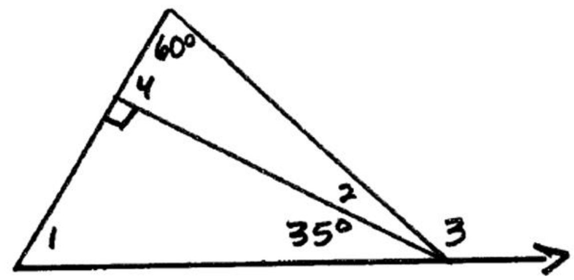
#2. Name the longest side of ΔDEF.



#3. Which angle in ΔABC has the greatest measure?



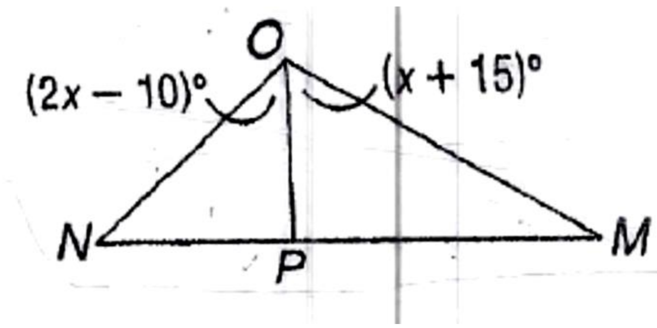
#4. Use the figure to find the angles.



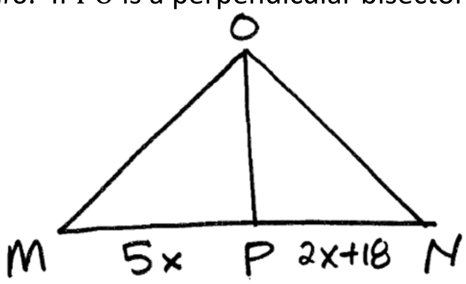
m<1 = _______ m<2 = _______

m<3 = _______ m<4 = _______

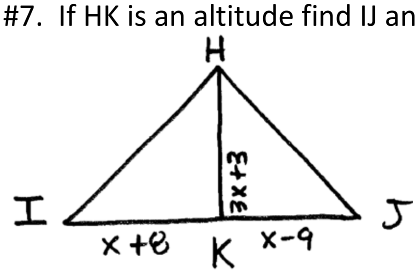
#5. If $\overline{PO}$ is an angle bisector of ∢MON, find x.



#6. If $\overline{PO}$ is a perpendicular bisector, find x.



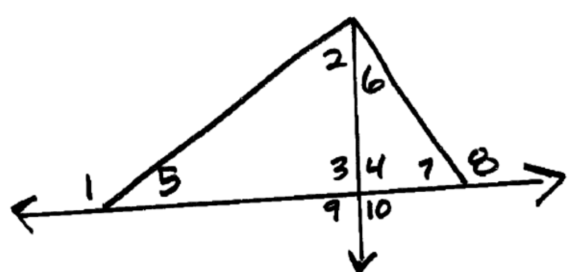
#7. If HK is an altitude find IJ and <J.



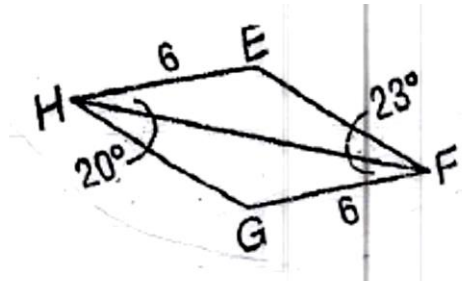
#8. Use the following figure to answer part a & part b.

a. Which angle has the greatest measure?
<3, <6, or <7

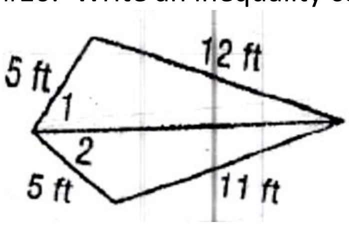
b. Which angle has the greatest measure?
<9, <5, or <2



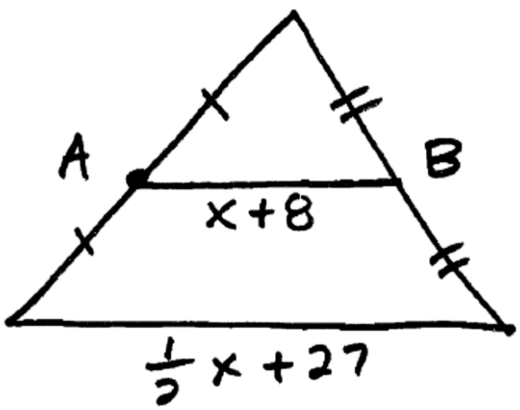
#9. Write an inequality comparing EF and GH.



#10. Write an inequality comparing m∢1 and m∢2.



#11. Find x in the triangle below:



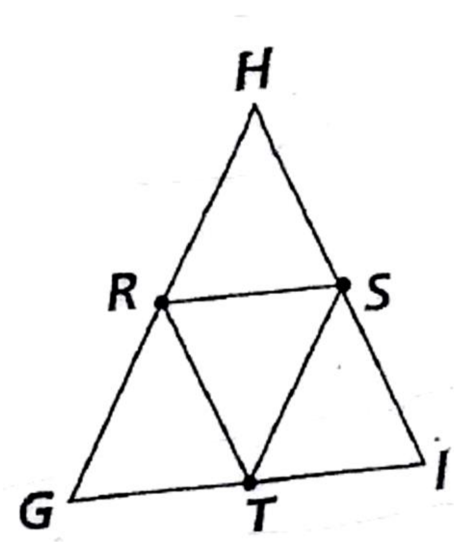
#12. Consider the following figure: **ΔGHI has midpoints at R, S, & T.**
Fill in the blank:

Part a: $\overline{RT}$ ∥ ______ **Part b**: $\overline{HG}$ ∥ ________

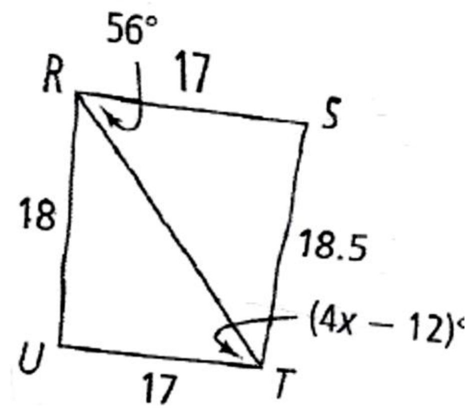
Part c: If GH = 16 and HI = 12, find RT.

Part d: If <G = 45 find m<HRS.

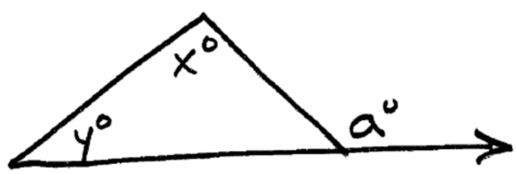
Part e: If m<G = m<H = m<I and RT = 26, find the perimeter of ΔGHI.



#13. What value must x be greater than, and what value must x be less than?



#14. What is the relationship between a and y? Explain.



#15. Use the figure shown to answer the following:

a. What is m<DBE?

b. What is m<ABE?

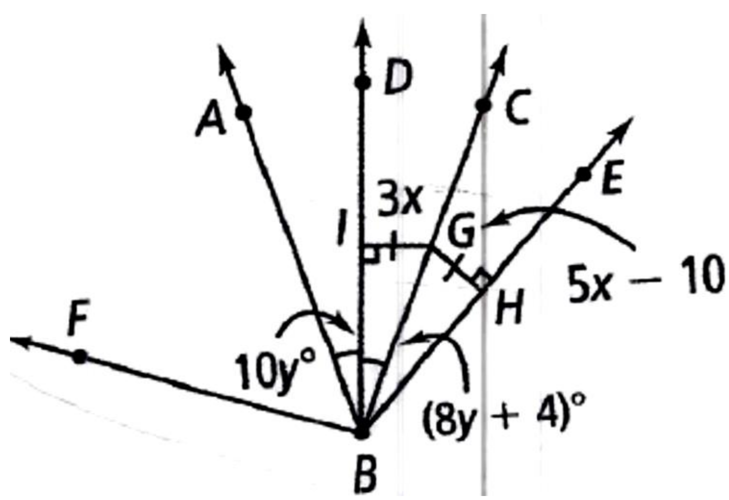
c. If m<FBA = 7x + 6y, what is m<FBA?

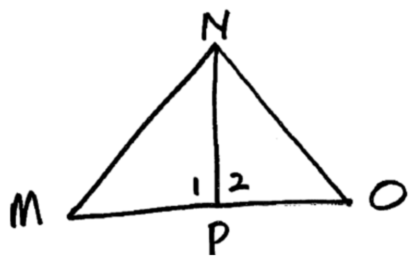
d. What is m<FBD?

e. What is m<ABC?

f. What is m<DBF?

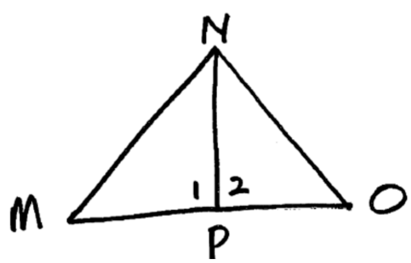
g. What is m<EBF?





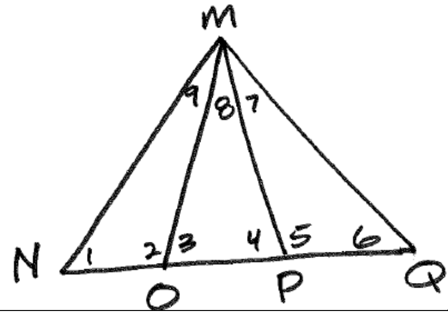
#16. **GIVEN**: P is the midpoint of MO
m<NPM > m<NPO
PROVE: MN > NO

STATEMENTS	**REASONS**
#1. P is the midpoint of MO; m<NPM > m<NPO	#1. Given
#2. NP = NP	#2.
#3. MP = PO	#3.
#4. MN > NO	#4.



#17. **GIVEN**: P is the midpoint of MO
MN > NO
PROVE: m<1 > m<2

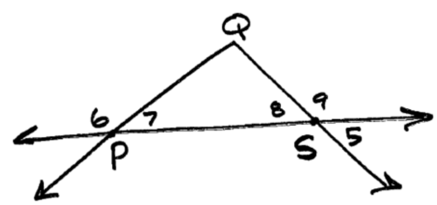
STATEMENTS	**REASONS**
#1. P is the midpoint of MO; MN > NO	#1. Given
#2. NP = NP	#2.
#3. MP = PO	#3.
#4. m<1 > m<2	#4.



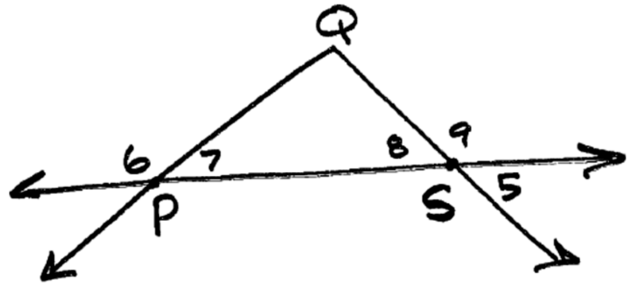
#18. **GIVEN**: MN = MQ
<9 = <7
PROVE: ΔMOP is an isosceles Δ

STATEMENTS	**REASONS**
#1. MN = MP; <9 = <7	#1. Given
#2. ΔNMQ is ________________	#2.
#3. <1 = <6	#3.
#4. $\Delta NMO \cong \Delta$__________	#4.
#5. MO = MP	#5.
#6. ΔMOP is an isosceles Δ	#6.

#19. **GIVEN**: <6 = <9
PROVE: PQ= QS

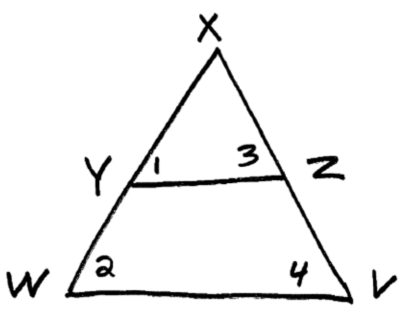


STATEMENTS	**REASONS**
#1. <6 = <9	#1. Given
#2. <6 & <7 are _____________________ <8 & <9 are _____________________	#2.
#3. <6 & <7 are _____________________ <8 & <9 are _____________________	#3.
#4.	#4.
#5.	#5.
#6. ΔPQS is an isosceles Δ	#6.
#7. PQ= QS	#7.



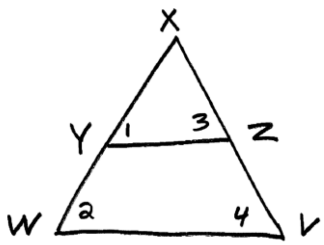
#20. **GIVEN**: <7 = <5
PROVE: PQ = QS

STATEMENTS	**REASONS**
#1. <7 = <5	#1. Given
#2. <8 & <5 are ______________________	#2.
#3. <8 = <5	#3.
#4. <7 = <8	#4.
#5. ΔPQS is an isosceles Δ	#5.
#6. PQ= QS	#6.



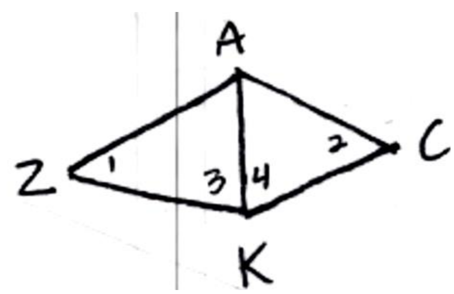
#21. **GIVEN**: WX = XV; WY = VZ
PROVE: ΔXYZ is an isosceles Δ

STATEMENTS	**REASONS**
#1. WX = XV; WY = VZ	#1. Given
#2. XY + YW = WX; XZ + ZV = XV	#2.
#3. XY = XZ	#3.
#4. ΔXYZ is an isosceles Δ	#4.



#22. **GIVEN**: YZ ∥ WV; ΔWXV is an isosceles Δ
PROVE: ΔXYZ is an isosceles Δ

STATEMENTS	**REASONS**
#1. YZ ∥ WV; ΔWXV is an isosceles Δ	#1. Given
#2. <2 = <4	#2.
#3. <1 & <2 are _____________________<'s <3 & <4 are _____________________<'s	#3.
#4. <1 = <2; <3 = <4	#4.
#5. <1 = <3	#5.
#6. ΔXYZ is an isosceles Δ	#6.

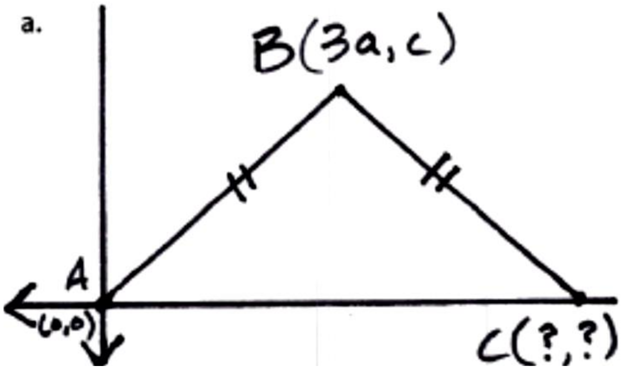


#23. Given: <1 = <2; $\overline{AK}$ bisects <ZKC.
Prove: ΔAKZ ≅ ΔAKC

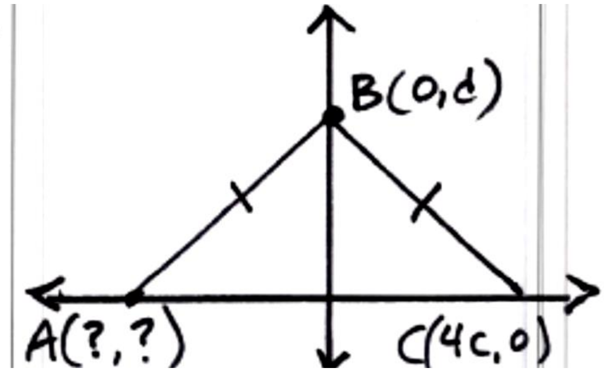
STATEMENTS	**REASONS**
#1. <1 = <2; $\overline{AK}$ bisects <ZKC	#1. Given
#2. <3 = <4	#2.
#3. AK = AK	#3.
#4. ΔAKZ ≅ ΔAKC	#4.

#24. What are the missing coordinates of these triangles?

a.

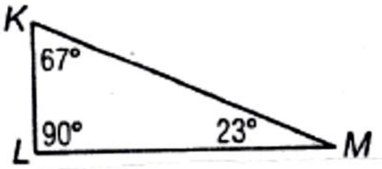


b.

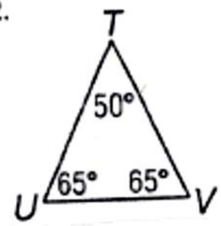


#25. ***Classify each triangle as: equilateral, isosceles, scalene, acute, equiangular, obtuse, or right. Some of the triangles may have more than ONE answer:***

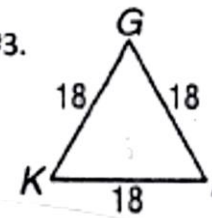
#1.



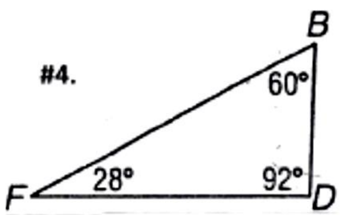
#2.



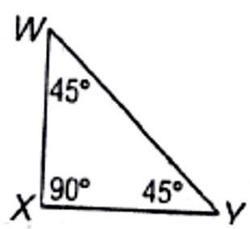
#3.



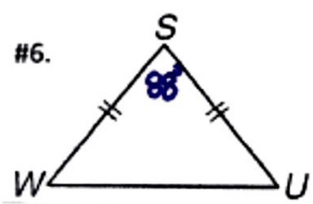
#4.



#5.



#6.



Solve, graph, and write an interval for each:

#26. $10 + |x + 9| < 8$

#27. $-4|8x - 9| > 20$

#28. $|x + 9| + 18 = 17$

#29. $1 < |x - 12| + 7$

#30. $-2|x| \geq 10$

#31. $2|x| \geq -10$

#32. What is the equation, in standard form, of the line that passes through (10, -6) and has a slope of 3/4?

#33. What is the equation, in standard form, of the line that passes through (8, -2) and has a slope of 4/3?

#34. Solve by any method you choose:

$$\begin{cases} 2x + y = 7 \\ 2x + y = -1 \end{cases}$$

#35. Short Answer

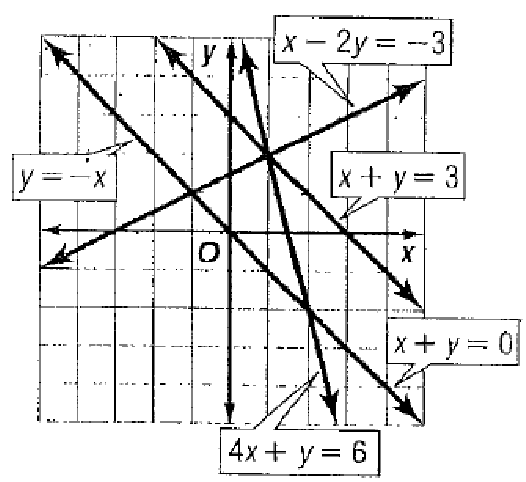
Refer to the figure below and determine whether each pair of equations has NO SOLUTION, INFINITELY MANY SOLUTIONS or ONE SOLUTION.

#1. x – 2y = -3
4x + y = 6
ANSWER: ______________________________

#2. x + y = 3
x + y = 0
ANSWER: ______________________________

#3. y = -x
4x + y = 6
ANSWER: ______________________________

#4. x + y = 0
y = -x
ANSWER: ______________________________

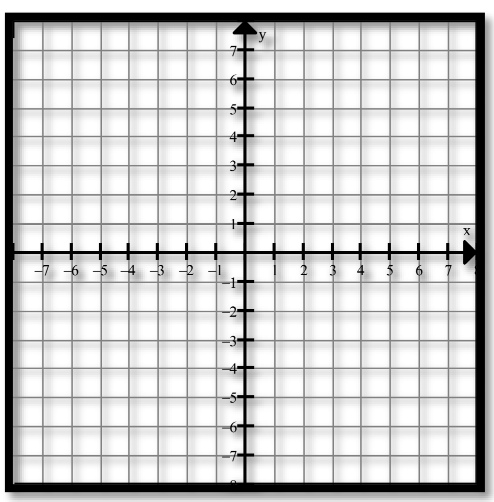


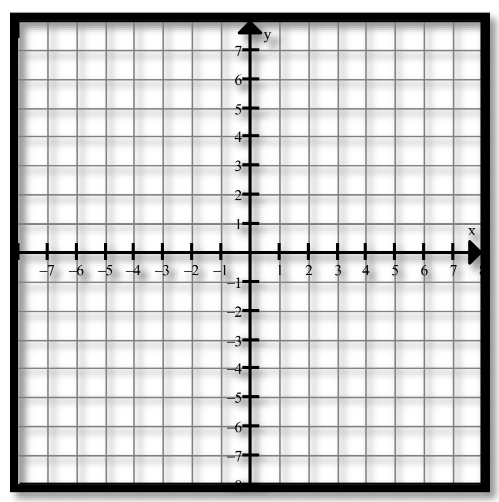
#36. Word Problem: The point (-7, -12) is on the graph of a linear equation. Another point on the graph of the same equation can be found by going 21 units up and 29 units to the right from (-7, -12). What is the slope of the line represented by the equation? Write the equation in slope-intercept form and then write it in standard form.

Find the x and y intercepts for the given equations. Graph the equations, after finding the intercepts.

#37. -4x – 2y = -8

#38. 2x + 3y = -6





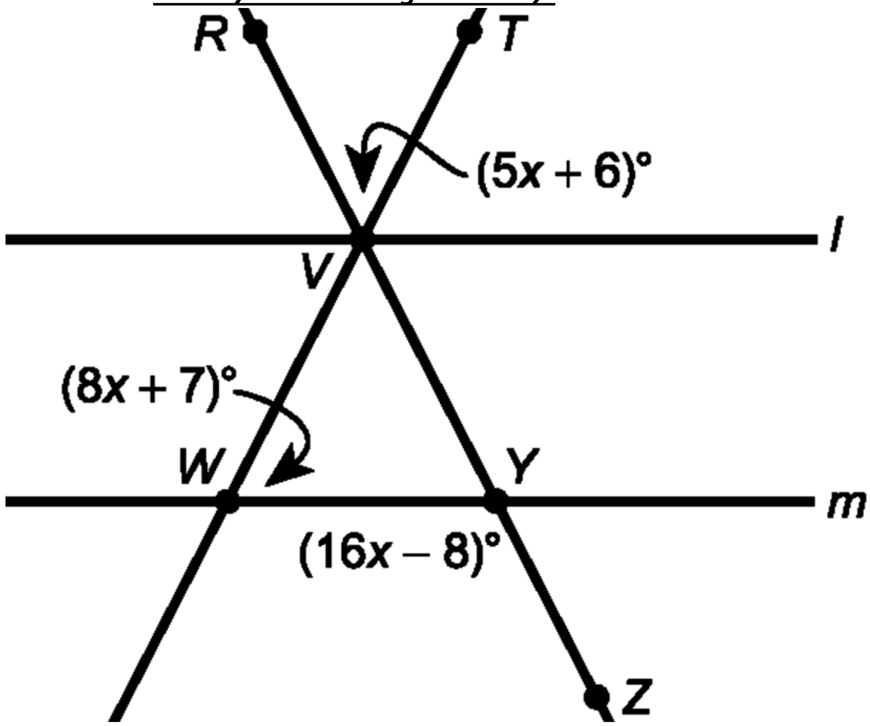
Write the following equations in slope intercept form. Afterwards, state what the slope of a line is that perpendicular to the original line would be.

#39. -4x – 2y = -8

#40. 2x + 3y = -6

#41. ***Find the other endpoint of the line segment with the given endpoint and midpoint.***
Endpoint: (-5, 4); Midpoint (-10, -6)

#42. In the figure, segments RZ and WT are ***transversals*** that cut ***parallel*** lines m and l. Find the value of x. ***<u>Show your work algebraically.</u>***

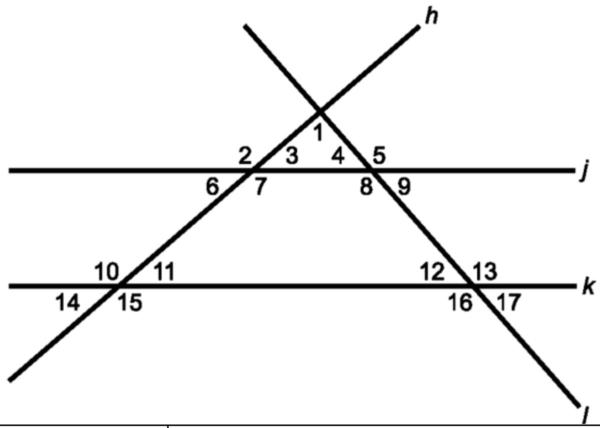


#43.

GIVEN:

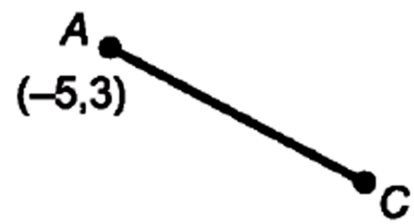
$j \| k$; h ⊥ l; transversals h and l both intersect j and k.

PROVE: m<8 + m<10 = 270



STATEMENTS:	REASONS:
#1. $j \| k$; h ⊥ l; transversals h and l both intersect j and k.	#1. Given
#2. <1 is a right angle	#2.
#3. <1 = 90	#3.
#4. <1 + <3 + <4 = 180	#4.
#5. 90 + <3 + <4 = 180	#5.
#6. <3 + <4 = 90	#6.
#7. <3 and <11 are _________________ angles	#7.
#8. <3 = <11	#8.
#9. <10 and <11 are a linear pair	#9.
#10. <10 and <11 are supplementary	#10.
#11. <10 + <11 = 180	#11.
#12. <10 + <3 = 180	#12.
#13. <3 = 180 – <10	#13.
#14. <4 and <8 are a linear pair	#14.
#15. <4 and <8 are supplementary	#15.
#16. <4 + <8 = 180	#16.
#17. <4 = 180 – <8	#17.
#18. 180 – <10 + 180 – <8 = 90	#18.
#19. -<10 – <8 + 360 = 90	#19.
#20. - <10 – <8 = -270	#20.
#21. m<8 + m<10 = 270	#21.

#44. The midpoint of segment AC has coordinates (-1, 1). Point A has coordinates of (-5, 3). What is the y-coordinate of point C?



#45. Find the ***distance*** between the points: (-5, 11) and (3, 2).

#46. A midsegment is a segment that joins the midpoints of 2 sides of a triangle. What are the coordinates of the endpoints of the midsegment of ΔABC parallel to $\overline{AC}$?