Name_____ Date_____

Geometry Midterm Review

Topics to include, but not limited to:

-Points, lines and planes
-Segment Addition Postulate

-Midpoint of a segment

-Bisector of a segment

-Types of Angles (Right, Acute, Obtuse, Straight)

-Angle Addition Postulate (there is only 180 degrees in a straight angle)

-Adjacent angles

-*If p, then q* is a conditional statement. *p* is the hypothesis and *q* is the conclusion.

- *If q, then p,* is the converse statement.

-Properties of Algebra and Properties of Congruence

-Complementary Angles -_____

-Supplementary Angles-_____

-Vertical Angles are _____

-Perpendicular lines are two lines that form _____ angles. If two lines are perpendicular then they form _____. If two lines form _____, then the lines are perpendicular.

-Lines that do not intersect are either parallel or skew.

-When two parallel lines are cut by a transversal:

a. corresponding angles are _____
b. alternate interior angles are _____
c. same- side interior angles are _____.
d. If the transversal is perpendicular to one of two parallel lines, it is also perpendicular to the other one.

-Five ways to prove lines are parallel are:

a. _____
b. _____
c. _____
d. _____
e. _____

-Exterior Angle Inequality Theorem _____

-Statement: *If p, then q*

Converse: _____

Contrapositive: _____

Inverse: _____

-You begin an indirect proof by assuming temporarily that what you wish to prove is NOT true. You then try to reach a contradiction of the given or of a known fact.

-In triangle RST, if RT > RS, then m∠S > m∠T. Conversely, if m∠S > m∠T, then RT >RS.

-The third side of any triangle is less than the sum of the other two sides and greater than the difference between them.

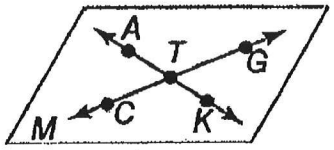
Name:_____ Date:_____

Geometry Midterm Review

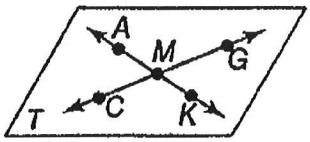
Chapter 1:

1. Which diagram shows $\overleftrightarrow{AK}$ and $\overleftrightarrow{CG}$ intersect at point M in plane T.

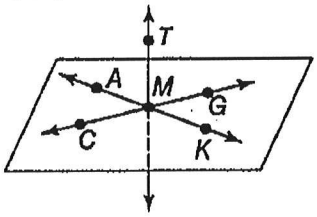
A)



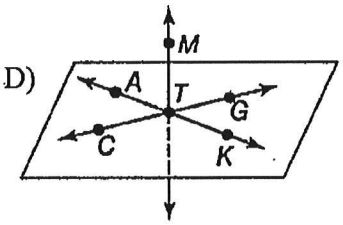
B)



C)

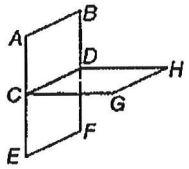


D)

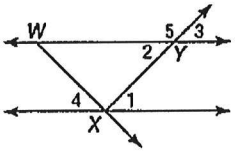


2. Given A is between Y and Z and $YA = 14x$, $AZ = 10x$, and $YZ = 12x + 48$, find AZ. Draw a diagram.

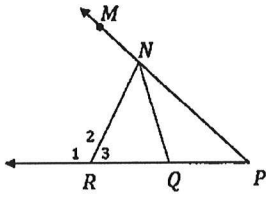
3. Name the intersection of $\overleftrightarrow{AE}$ and $\overleftrightarrow{CG}$.



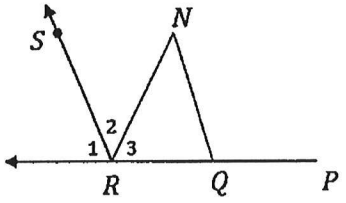
4. Which angles form a linear pair?



5. If $\overline{NQ}$ bisects $\angle RNP$, then $\angle QNP \cong$ ___?___.

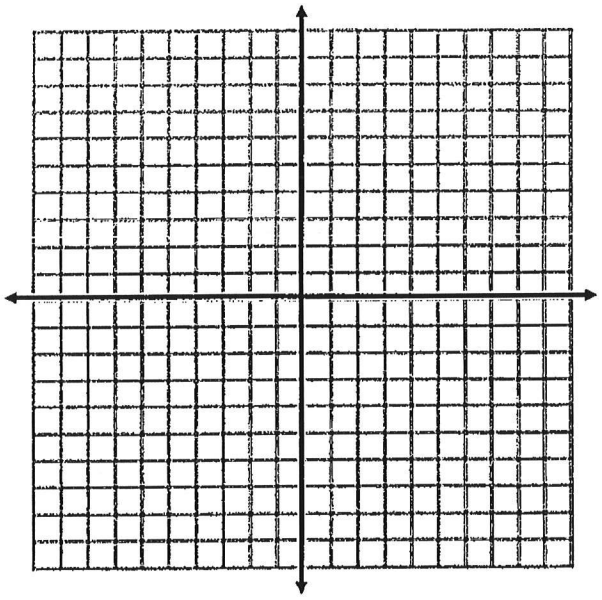


6. If $\overline{RN}$ bisects $\angle SRQ$ and $m\angle 2 = 55°$, then $m\angle 1 =$ ___?___.



7. Graph the figure with the given vertices and identify the figure.
Then find the perimeter and area of the figure.

***O* (3, 2), *P* (1, 2), *Q* (1, -4), *R* (3, -4)**



Name of figure:_____

Perimeter of figure: _____

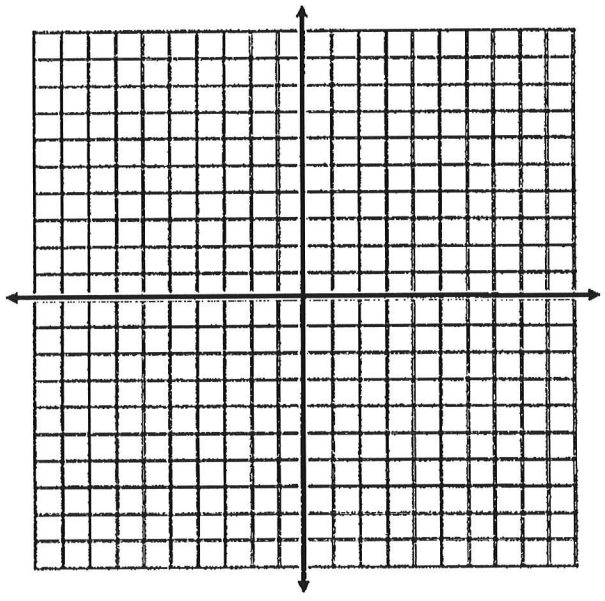
Area of figure: _____

8. Graph the points ***D* (2, 5)** and ***G* (8, -3)** and draw $\overline{DG}$.

a) Find the distance between points D and G. _____

b) Find the coordinates of the midpoint of $\overline{DG}$. _____

c) If D were the midpoint of $\overline{HG}$, what would the coordinates of H be? _____



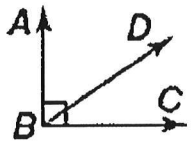
9. $\overline{RS}$ is in the interior of $\angle TRU$, $m\angle TRS = 4x+6$, and $m\angle SRU = 8x-6$.

a) Draw and label $\angle TRU$ and $\overrightarrow{RS}$.

b) Determine the value of x that will make $\overrightarrow{RS}$ an angle bisector. Explain your steps.

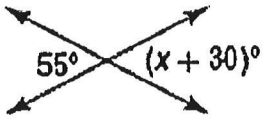
Chapter 2:

10. If $m\angle ABD = 56$, find $m\angle DBC$. (Use the figure to the right)



11. What property justifies the statement. If $m\angle A = 10$ and $m\angle B = 10$, then $m\angle A = m\angle B$.

12. Find the value of x. (Use the figure to the right)



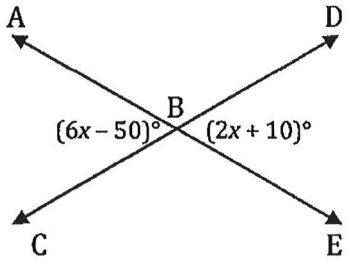
13. Write the contrapositive of the following statement. If $x = 5$, then $x + 8 = 13$.

14. Write the inverse of the statement: *If a triangle has 3 equal sides, then it is equilateral.*

15. Find the value of x. Then find the measure of $\angle ABD$.

$x =$ _____

$\angle ABD =$ _____



16. Look for a pattern and make a conjecture. Then predict the next two numbers in each sequence.

a) 4, 8, 12, 16, ...

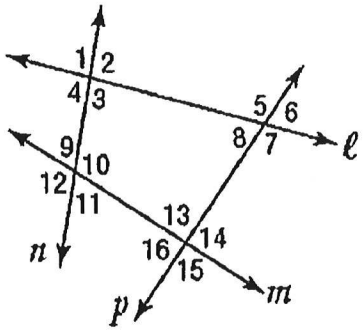
b) −2, 4, −8, 16, −32, ...

Chapter 3:

17. List all pairs same-side interior angles.

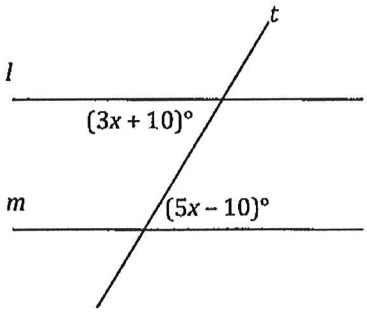
18. List all pairs of alternate interior angles.

19. List all pairs of alternate exterior angles.



20. List all pairs of corresponding angles.

21. If $l \parallel m$, find the value of x. (Use the diagram at right)

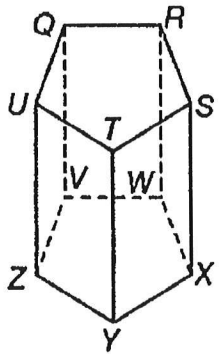


For 22 – 24 use the diagram to the below.

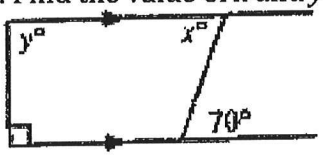
22. Name all segments that are parallel to $\overline{XY}$.

23. Name all planes that intersect plane STX.

24. Name all segements that are skew to $\overline{VW}$.

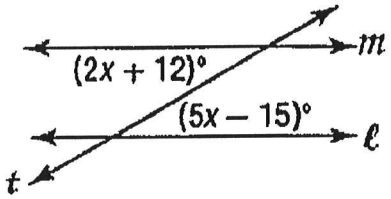


25. Find the value of x and y.

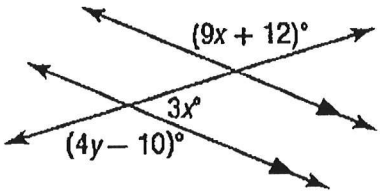


26. Find the value of x and y.

27. Find x so that $l \parallel m$. Identify the postulate or theorem you used.



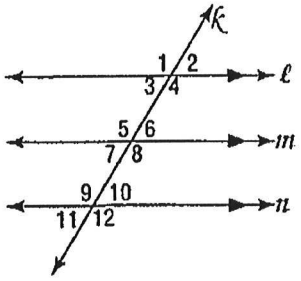
28. Find the value of the variable(s) in the figure. Explain your reasoning.



29. Write a two-column proof for the following.

Given: $l \parallel m$
$m \parallel n$

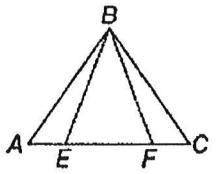
Prove: $\angle 1 \cong \angle 12$



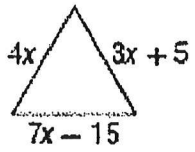
Statements	*Reasons*

Chapter 4:

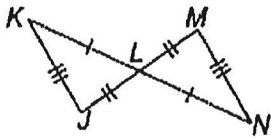
30. If ΔABC is isosceles with vertex angle $\angle B$, and $\overline{AE} \cong \overline{FC}$, which theorem or postulate can be used to prove $\Delta AEB \cong \Delta CFB$?



31. What are the lengths of the sides of this equilateral triangle?

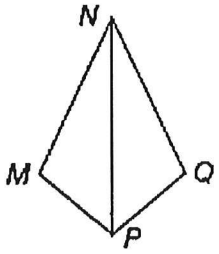


32. Which triangles are congruent in the figure?

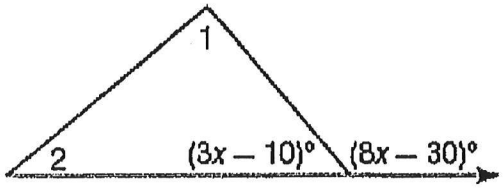


33. If $\Delta DJL \cong \Delta EGS$, then list all the corresponding sides and angles.

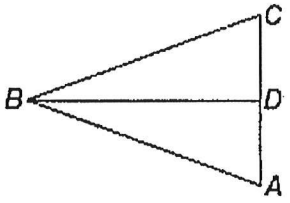
34. Quadrilateral $MNQP$ is made of two congruent triangles. $\overline{NP}$ bisects $\angle N$ and $\angle P$. In the quadrilateral, $m\angle N = 50$ and $m\angle P = 100$. What is the measure of $\angle M$?



35. Find the value of x, and find the value of $m\angle 1$, if $m\angle 1 = 4x + 10$.



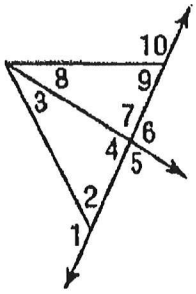
36. Write a two-column proof. Mark your diagram.
Given: ΔABC is an isosceles triangle.
$\overline{BD} \perp \overline{AC}$
Prove: $\angle A \cong \angle C$



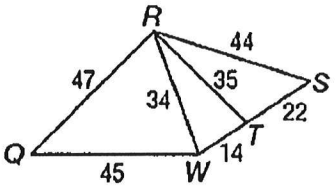
Statements	Reasons

Chapter 5:

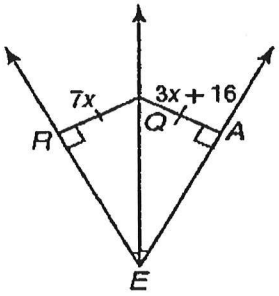
37. In the diagram given, which angle has the greatest measure of $\angle 1, \angle 3, \angle 4$.



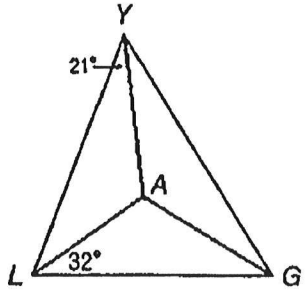
38. Determine the relationship between $m\angle RST, m\angle TRS$



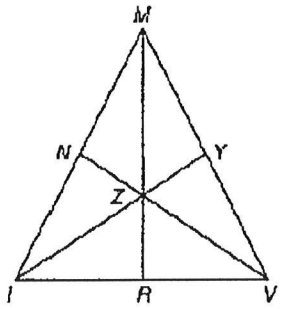
39. Find the value of x and QA.



40. Point A is the incenter of ΔPQR. Find $m\angle YGA$. (Use diagram at right)



41. In ΔMIV, Z is the centroid, $MZ = 6$, $YI = 18$, and $NZ = 12$.

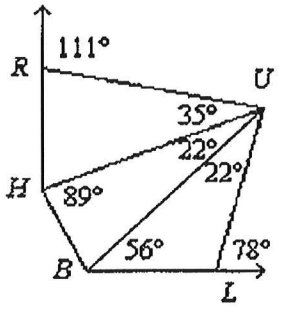


a) Find MR

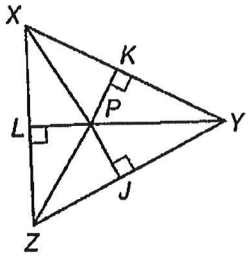
b) Find ZV

c) Find YZ

42. List the sides of ΔRUH in least to greatest order.

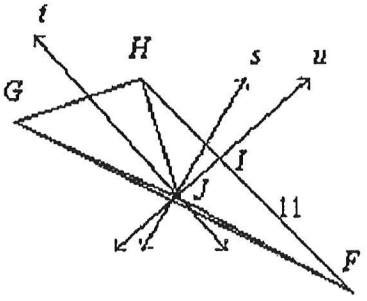


43. Point P in the incenter of ΔXYZ. If $PY = 40$ and $JY = 32$, find LP.



44. Find the range for the third side of a triangle given two sides with measures of 7 km and 29 km.

45. Lines s, t, and u are perpendicular bisectors of the sides of ΔFGH and meet at J. If $JG = 2x + 2$, $JH = 2y - 2$, $JF = 8$, and $HI = 2z - 3$, find x, y, and z.



46. Is it possible to form a triangle with the given sides lengths of 4 ft, 8 ft, and 18 ft. If not explain why not.