

# Final Exam Review

## Ch 1-5

Henry Ford Early College

H. Geometry: Unit 1 Review

Unit 1: Vocabulary Essentials and Angle Relationships

Chapter 1: Sections 1.3-1.6, 1.8

**Directions: Match the following terms with their precise definitions.**

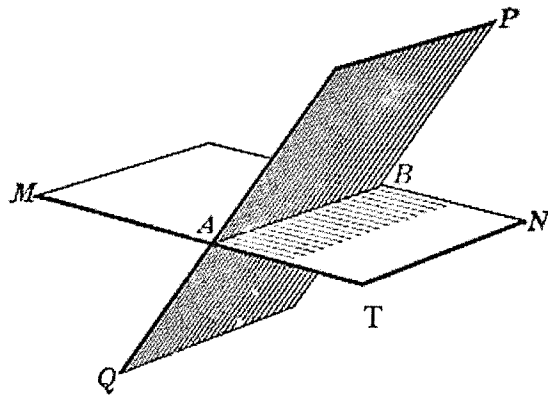
- |                            |  |
|----------------------------|--|
| 1. ___ line segment        | A. Lines that are coplanar and do not intersect. |
| 2. ___ perpendicular lines | B. Part of a line consisting of 2 endpoints.     |
| 3. ___ parallel lines      | C. Formed by 2 rays with the same endpoint.      |
| 4. ___ angle               | D. 2 Lines that intersect at a 90 angle.         |

**Directions: Identify the following from the diagram.**

5) 3 Collinear points \_\_\_\_\_

6) 3 coplanar points \_\_\_\_\_

7) a plane \_\_\_\_\_



**Directions: Identify the following from the diagram. Make sure you have the appropriate geometric markings.**

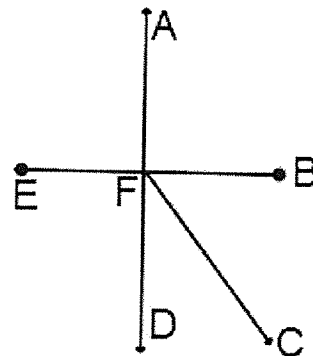
8) Line \_\_\_\_\_

9) Segment \_\_\_\_\_

10) Ray \_\_\_\_\_

11) Angle \_\_\_\_\_

12) Opposite rays \_\_\_\_\_



13.) Find the distance between points  $P(8, 2)$  and  $Q(3, 8)$  to the nearest tenth.

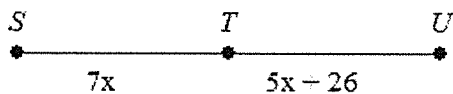
**Directions: Draw and label the following correctly.**

<b>Perpendicular Bisector</b> 14)	<b>Angle Bisector</b> 15)	<b>Obtuse Angle</b> 16)
<b>Acute Angle</b> 17)	<b>Point</b> 18)	<b>Opposite Rays</b> 19)

20.) If  $EF = 2x - 5$ ,  $FG = 4x - 8$ , and  $EG = 29$ , find the values of  $x$ ,  $EF$ , and  $FG$ . The drawing is not to scale.



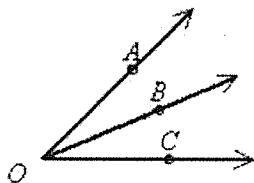
21.) If  $T$  is the midpoint of  $SU$ , find the values of  $x$  and  $ST$ . The diagram is not to scale.



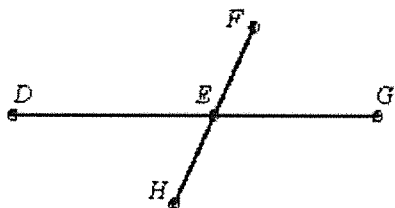
22.)  $M(3, 3)$  is the midpoint of  $RS$ . The coordinates of  $S$  are  $(4, 4)$ . What are the coordinates of  $R$ ?

- a.  $(6, 6)$       b.  $(2, 2)$       c.  $(3.5, 3.5)$       d.  $(5, 5)$

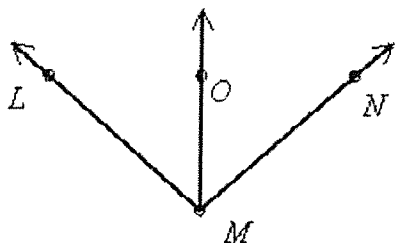
- 23.) If  $m\angle BOC = 36$  and  $m\angle AOC = 62$ , then what is the measure of  $\angle AOB$ ? The diagram is not to scale.



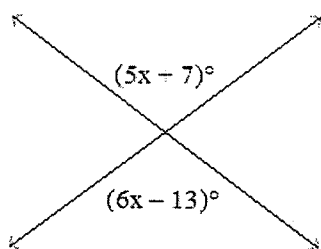
- 24.) If  $m\angle DEF = 107$ , then what are  $m\angle FEG$  and  $m\angle HEG$ ? The diagram is not to scale.



- 25.)  $\overrightarrow{MO}$  bisects  $\angle LMN$ ,  $m\angle LMO = 8x - 22$ , and  $m\angle NMO = 2x + 38$ . Solve for  $x$  and find  $m\angle LMN$ . The diagram is not to scale.

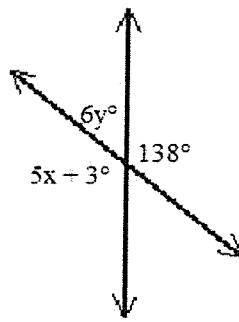


- 26.) Find the value of  $x$ .



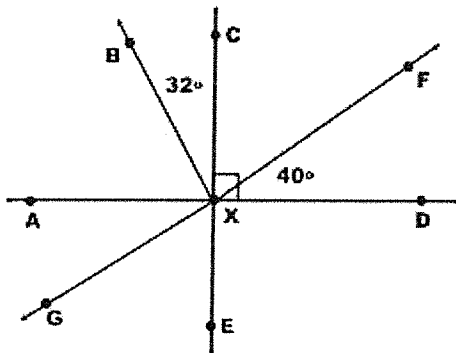
Drawing not to scale

27.) Find the values of  $x$  and  $y$ .



Drawing not to scale

Use the diagram below for questions 28 – 33.



28. Name a right angle. \_\_\_\_\_

29. Name a pair of complementary angles. \_\_\_\_\_ and \_\_\_\_\_

30. Name a pair of vertical angles. \_\_\_\_\_ and \_\_\_\_\_

31. Name a pair of supplementary angles. \_\_\_\_\_ and \_\_\_\_\_

32. Name a straight angle. \_\_\_\_\_

33. Find the measure of the angles below:

$m\angle AXB =$  \_\_\_\_\_

$m\angle CXF =$  \_\_\_\_\_

$m\angle AXG =$  \_\_\_\_\_

$m\angle EXD =$  \_\_\_\_\_

$m\angle BXG =$  \_\_\_\_\_

$m\angle BXF =$  \_\_\_\_\_

## Geometry Chapter 2 Review

1. Write down ALL of the steps it takes to solve the given equation for  $x$ . Give a reason for each of the steps.

Given:  $10x + 11 + 2x = 59$

Steps	Reasons
1. $10x + 11 + 2x = 59$	1.
2. $12x + 11 = 59$	2.
3. $12x + 11 - 11 = 59 - 11$	3.
4. $12x = 48$	4.
5. $\frac{12x}{12} = \frac{48}{12}$	5.
6. $x = 4$	6.

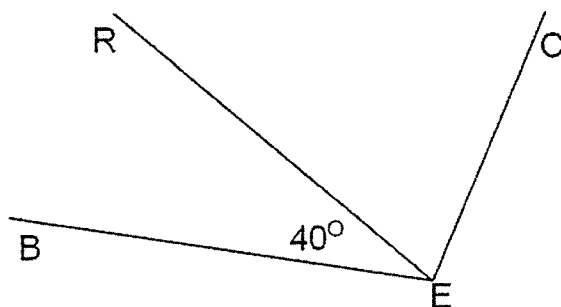
2. Write down ALL of the steps it takes to solve the given equation for  $x$ . Give a reason for each of the steps.

Given:  $9x + 3(x - 4) + 2 = 74$

3. Provide the reasons for each step.

Given:  $m\angle CEB = 105^\circ$

Prove:  $m\angle CER = 65^\circ$



Steps	Reasons
1. $m\angle CER + m\angle REB = m\angle CEB$	1.
2. $m\angle CER + 40^\circ = 105^\circ$	2.
3. $m\angle CER = 65^\circ$	3.

4. Provide the reasons for each step.

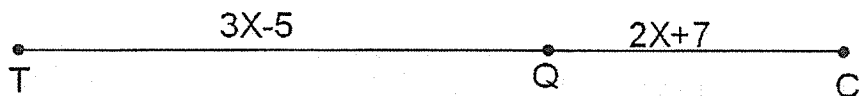
Given: J is the midpoint of  $\overline{AZ}$



Steps	Reasons
1. J is the midpoint of $\overline{AZ}$	1. _____
2. $AJ = JZ$	2. _____
3. $2x + 8 = 4x$	3. _____
4. $8 = 2x$	4. _____
5. $4 = x$	5. _____
6. $x = 4$	6. _____

5. Provide the reasons for each step.

Given:  $TC = 22$



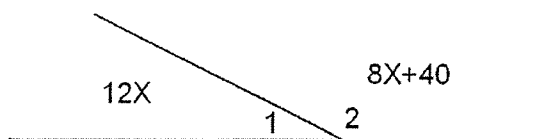
Steps

1.  $TQ + QC = TC$
2.  $3x - 5 + 2x + 7 = 22$
3.  $5x + 2 = 22$
4.  $5x = 20$
5.  $x = 4$

Reasons

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

6. Provide the reasons for each step.



Steps

1.  $m\angle 1 + m\angle 2 = 180^\circ$
2.  $12x + 8x + 40 = 180^\circ$
3.  $20x + 40 = 180^\circ$
4.  $20x = 140^\circ$
5.  $x = 70^\circ$

Reasons

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

7. Use the given property to complete each statement.

(a). Use the Addition Property of Equality: If  $9x - 12 = 42$ , then

(b). Use the Multiplication Property of Equality: If  $\frac{x}{2} = 20$ , then

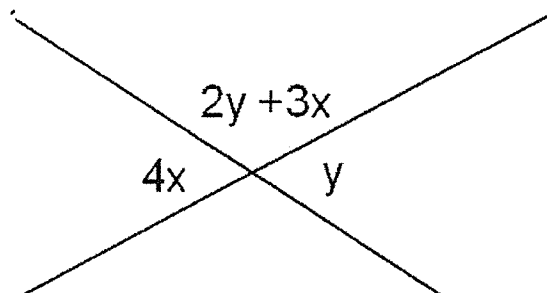
(c). Reflexive Property  $\angle ABC \cong$

(d). Transitive Property If  $MC = RW$  and  $RW = QT$  and  $QT = GV$ , then

(e). Symmetric Property If  $\angle CAD \cong \angle EXQ$ , then

(f). Substitution Property If  $AB + BQ = AQ$  and  $BQ = 12$ , then

8. Solve for  $x$  and  $y$ :



9. Use this conditional: If I go to sleep, then I'll have a dream.

- a) State the hypothesis                      b) State the conclusion

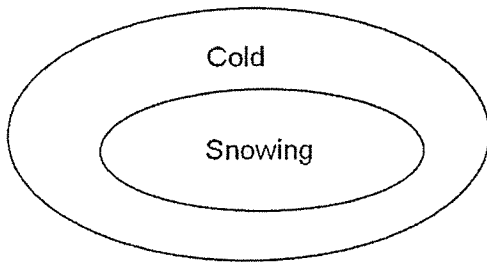
10. Write each as a conditional

- a) All flowers have petals.                      b) A fish has gills

11. Use this conditional: If an even number and an odd number are multiplied, then the product is even.

- a) Is this statement true or false?    If false, give a counterexample.  
b) Write the converse.  
c) Is the converse true or false?    If false, give a counterexample

12. Write the conditional modeled by the Venn Diagram:



13. Use this biconditional: It's a cat if and only if it has whiskers.

- a) Write the two conditionals that make up this biconditional.  
b) Are both conditionals true? If no, state which is false and give a counterexample.  
c) Is the biconditional true? Explain.

For 14 and 15 do the following:

- a) Write the converse.  
b) Is the converse true? If no, give a counterexample. If yes, write the original conditional and its converse as a biconditional.

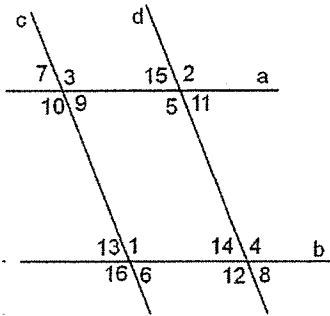
14. Use this conditional: If a quadrilateral is a Rhombus, then it has four equal sides.

15. Use this conditional: If you add an even number and an odd number, then the sum is odd.

## Geometry Review Chapter 3

Use the figure below where  $a \parallel b$  and  $c \parallel d$ . State the name given to each pair of angles, if any, and their relationship.

1. 14 and 15    2. 13 and 9    3. 11 and 1    4. 8 and 16    5. 3 and 12    6. 13 and 10



Use the same figure above to write a proof.

7. Given:  $a \parallel b$  and  $c \parallel d$

Prove:  $\angle 4 \cong \angle 3$

8. Given:  $a \parallel b$  and  $c \parallel d$

Prove:  $\angle 15$  &  $\angle 16$  are supplementary

Use the same figure above to write a proof.

9. Given:  $c \parallel d$  and  $\angle 8 \cong \angle 7$

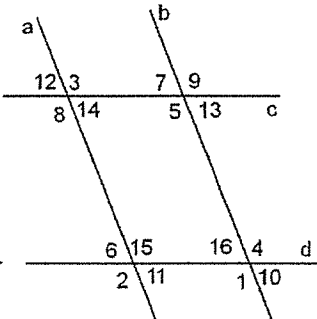
Prove:  $a \parallel b$

10. Given:  $a \parallel b$  and  $\angle 1$  &  $\angle 11$  are suppl

Prove:  $c \parallel d$

11. Use the figure below and the given information to determine if there are any parallel lines.

If yes, state which pair of lines are parallel and give a reason.



- a.  $\angle 13 \cong \angle 11$     b.  $\angle 3 \cong \angle 15$     c.  $\angle 4 \cong \angle 2$   
 d.  $\angle 14 \cong \angle 12$     e.  $\angle 13 \cong \angle 16$     f.  $\angle 12$  &  $\angle 2$  are suppl.  
 g.  $\angle 3$  &  $\angle 10$  are suppl.    h.  $\angle 13$  &  $\angle 4$  are suppl.

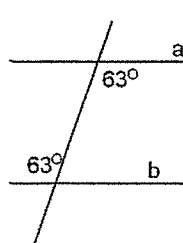
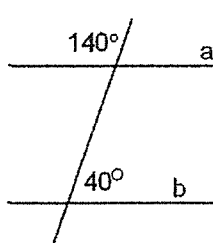
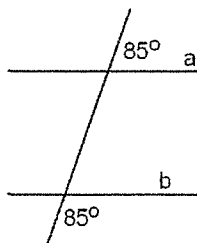
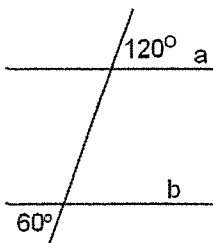
Are lines a and b parallel? If yes, give a reason.

13.

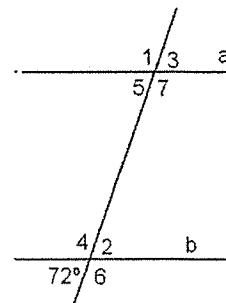
14.

15.

16.

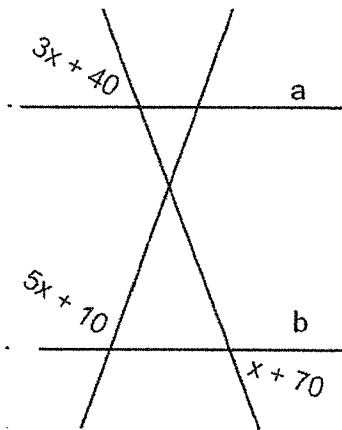


12. Given:  $a \parallel b$  find the measure of the numbered angles.

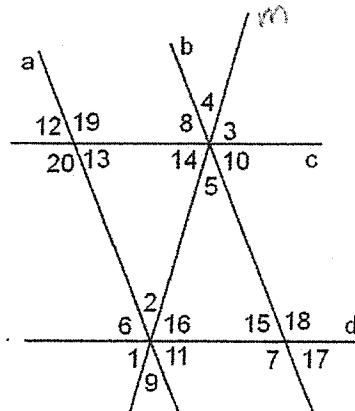




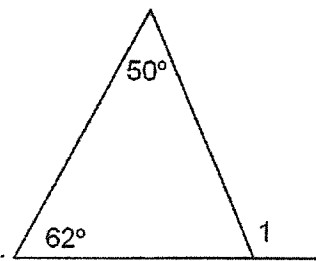
17. Find the value of  $x$  so that lines  $a$  and  $b$  are parallel.



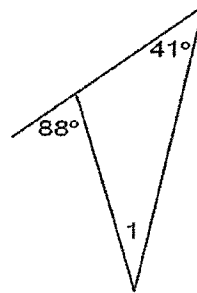
18. Name the parallel lines and the transversal that form each pair of angles then name the angles  
 a) 15 and 8    b) 2 and 4    c) 6 and 13    d) 7 and 11



19.  $m\angle 1 =$

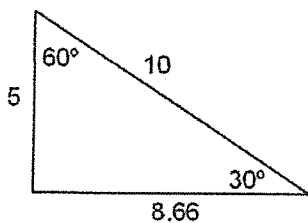


20.  $m\angle 1 =$

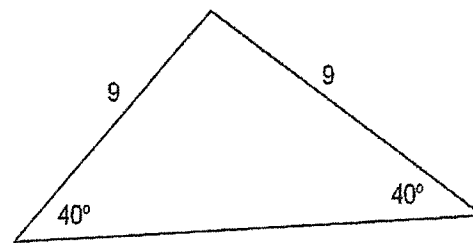


Classify each triangle by its angles and its sides.

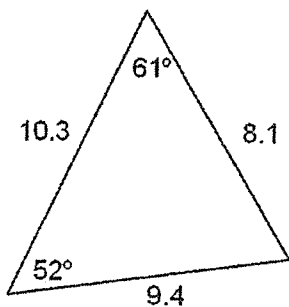
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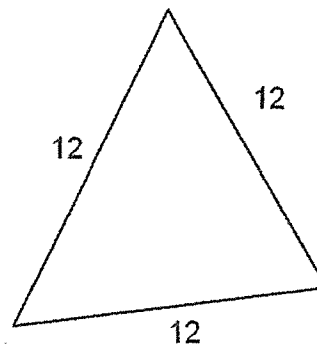
22.



23.

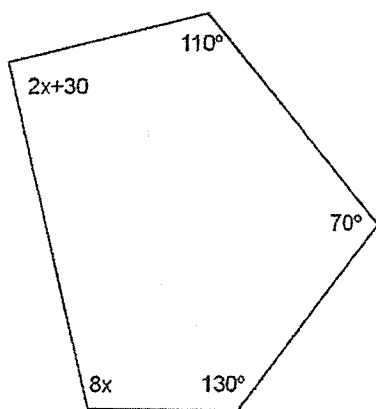


24.

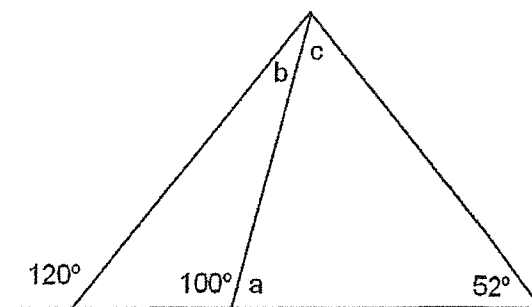


25. Find the sum of the interior angles of a Decagon.
26. Find the measure of one interior angle of a regular 15-gon.
27. Find the number of sides of a polygon if the sum of the interior angles is  $5580^\circ$ .
28. Find the number of sides of a regular polygon if one interior angle has a measure of  $171^\circ$ .
29. Find the measure of one exterior angle of a regular Octagon.
30. Find the number of sides of a regular polygon if one exterior angle has a measure of  $30^\circ$ .
31. Can the sum of the interior angles of a polygon equal  $3000^\circ$ ? Explain your answer.
32. Can the measure of one interior angle of a regular polygon equal  $175^\circ$ ? Explain your answer.

33. Find the value of  $x$  in the figure below.



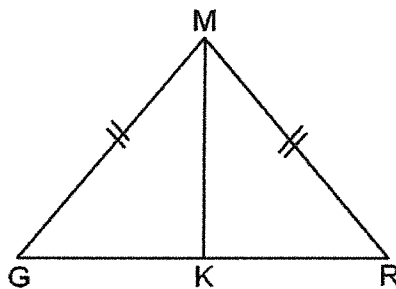
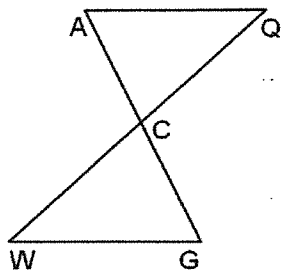
34. Find the value of each variable.



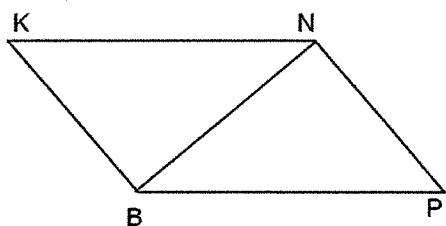
# Geometry Chapter 4 Review

Tell if each pair of triangles is congruent or not. If they are congruent give a reason (SSS,SAS,ASA,AAS,HL) and write a congruence statement.

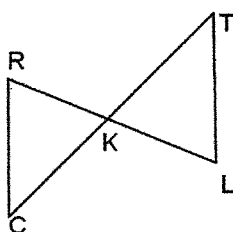
1. Given: C is the midpoint of  $\overline{AG}$ .  $\overline{AQ} \parallel \overline{GW}$  2. Given:  $\overline{MK} \perp \overline{GR}$



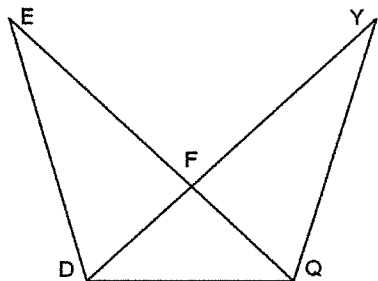
3.  $\overline{KN} \parallel \overline{PB}$  and  $\overline{NP} \parallel \overline{BK}$



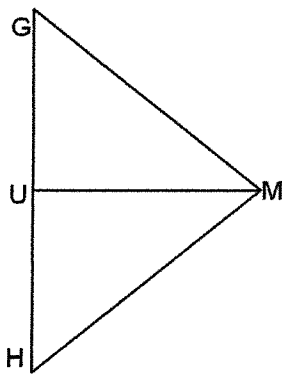
4. Given:  $\overline{RL}$  and  $\overline{TC}$  bisect each other.



5. Given:  $\overline{EQ} \cong \overline{YD}$  and  $\overline{ED} \cong \overline{YQ}$



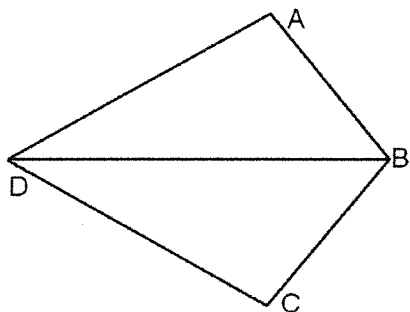
6.  $\overline{MU} \perp$  bisector of  $\overline{GH}$ .



7. Write a proof.

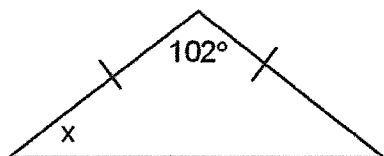
Given:  $\overline{DB}$  bisects  $\angle ABC$  and  $\overline{AB} \cong \overline{CB}$

Prove:  $\triangle DAB \cong \triangle DCB$

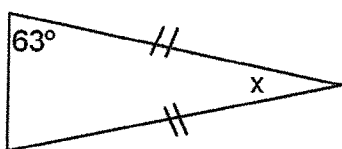


For 8 and 9, find the value of  $x$ .

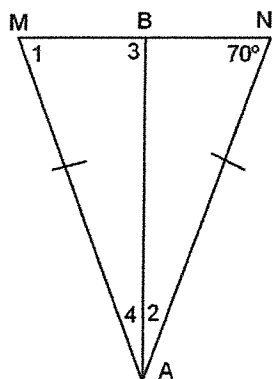
8.



9.



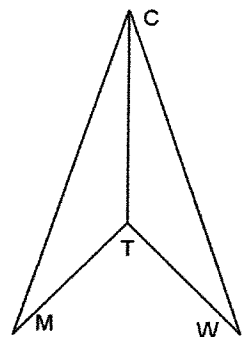
10. Given:  $\overline{AB}$  is the  $\perp$  bisector of  $\overline{MN}$   
Find the measure of each numbered angle.



11. Write a proof.

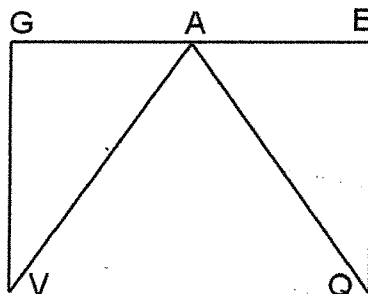
Given:  $\overline{TC}$  bisects  $\angle MCW$   
and  $\angle W \cong \angle M$

Prove:  $\overline{MT} \cong \overline{WT}$



12. Write a proof

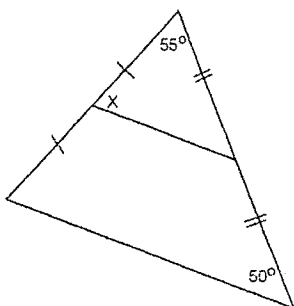
Given:  $A$  is the midpoint of  $\overline{GE}$   
 $\overline{QE}$  and  $\overline{VG}$  are  $\perp$  to  $\overline{GE}$ , and  $\overline{VA} \cong \overline{QA}$   
Prove:  $\angle Q \cong \angle V$



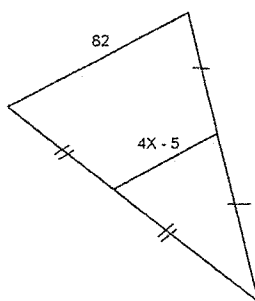
# Geometry Review Sec 5-1, 5-2, 5-3, 5-5

Find the value of x in each figure.

2.



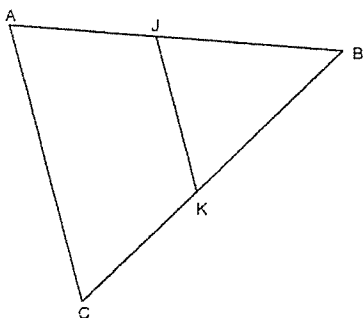
3.



4. Points J and K are midpoints.

$AJ=8$ ,  $BK=10$ , and  $AC=13$ .

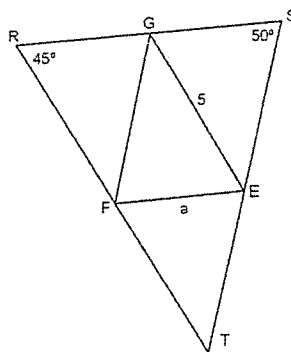
Find the perimeter of  $\triangle ABC$  and  $\triangle JBK$



5. G, E and F are midpoints.

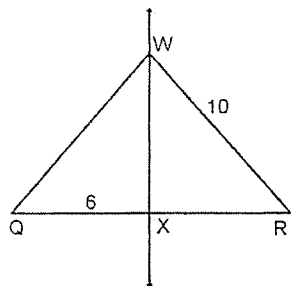
a) Given  $ST=12$  write an expression for the perimeters of  $\triangle RST$  and  $\triangle EFG$

b) Find the measure of each angle of  $\triangle EFG$



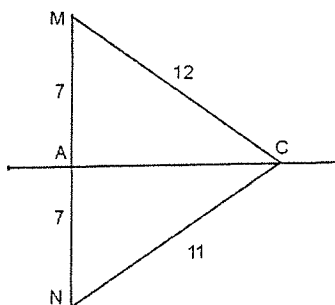
6.  $\overleftrightarrow{WX}$  is the  $\perp$  bisector of  $\overline{QR}$

Find the lengths of  $\overline{XR}$ ,  $\overline{QR}$ ,  $\overline{QW}$  and  $\overline{WX}$



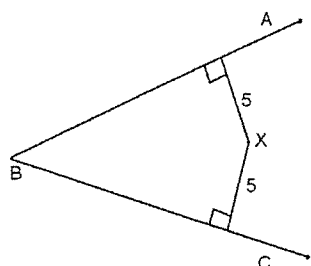
7. Is  $\overleftrightarrow{AC}$  the  $\perp$  bisector of  $\overline{MN}$ ?

Explain your answer.

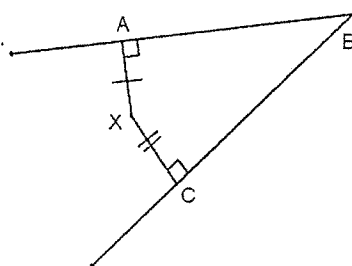


8. Determine if point X is on the angle bisector of  $\angle ABC$

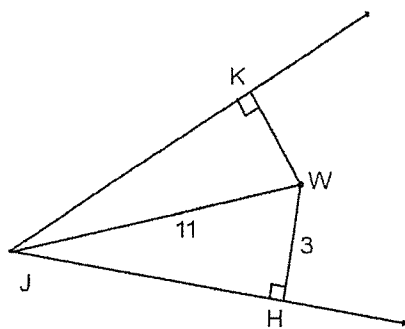
a.



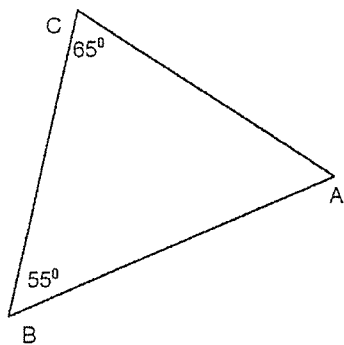
b.



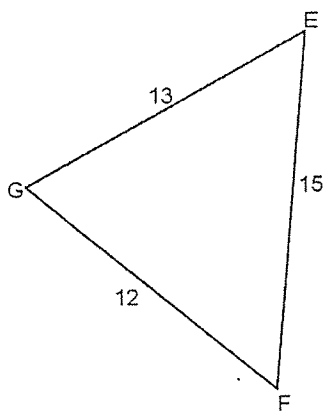
9. W is on the angle bisector of  $\angle HJK$ . Find the length of  $\overline{JK}$



10. List the sides of  $\triangle ABC$  in order from shortest to longest.



11. List the angles of  $\triangle EFG$  in order from smallest to largest.



12. In  $\triangle PQR$ ,  $PR = 50$ ,  $PQ = 40$ ,  $QR = 37$ . List the angles in order from smallest to largest.

13. In  $\triangle XYZ$ ,  $\angle X = 43^\circ$  and  $\angle Y = 47^\circ$ . List the sides in order from shortest to longest.

14. Can a triangle have sides with the given lengths.

- a) 10, 4, 6                      b) 8, 12, 5                      c) 23, 41, 60

15. Given the two sides of a triangle are 7 and 9 state the possible lengths of the third sides as a compound inequality.