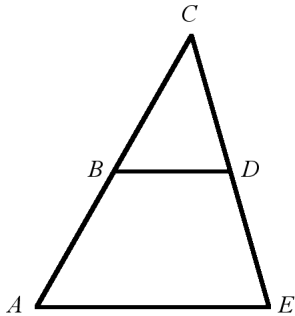
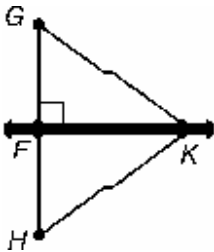


**Geometry Mastery Test #5 Review**

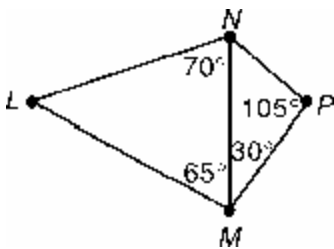
1. Solve for  $x$  given  $BD = \frac{5}{2}x + 3$  and  $AE = 3x + 8$ . Assume  $B$  is the midpoint of  $\overline{AC}$  and  $D$  is the midpoint of  $\overline{CE}$ .



2. If  $\overleftrightarrow{KF}$  is the perpendicular bisector of  $\overline{GH}$ , then  $\angle KGF \cong$  \_\_\_\_\_.



3. Refer to the figure.



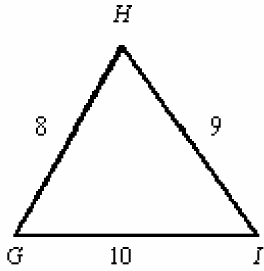
The longest segment is \_\_\_\_\_.

4. Two sides of a triangle have sides 5 and 20. The length of the third side must be greater than \_\_\_\_\_ and less than \_\_\_\_\_.

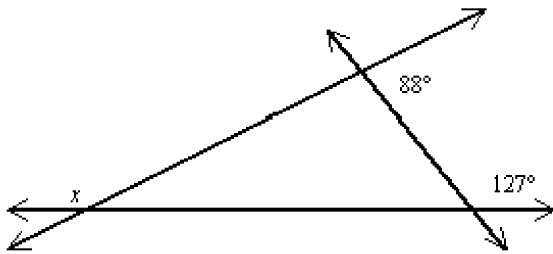
Name: \_\_\_\_\_

ID: A

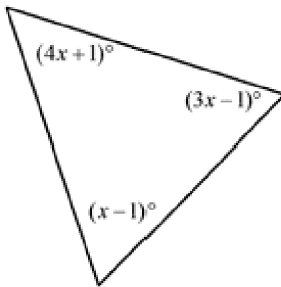
5. Classify  $\triangle GHI$ .



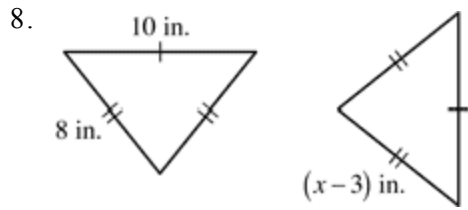
6. Find the value of  $x$ :



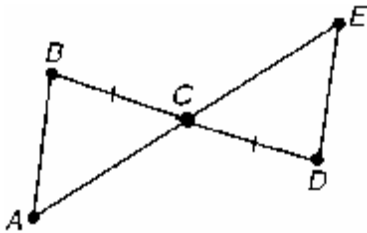
7. Find the measure of the interior angles to the nearest tenth. (Drawing is not to scale.)



Explain how you know the triangles are congruent. Then write an equation and solve for  $x$ .



9. What must be true in order for  $\triangle ABC \cong \triangle EDC$  by the SAS Congruence Postulate?



10. Find the values of  $x$  and  $y$ .

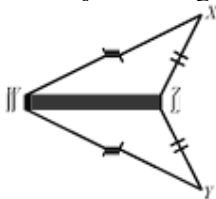


11. Write the equation of the line passing through the point  $(-8, -6)$  and parallel to the line  $y = 9x - 3$ .

12. The midpoint of  $\overline{AB}$  is  $M(2, 1)$ . One endpoint is  $A(8, -3)$ . Find the coordinates of the other endpoint.

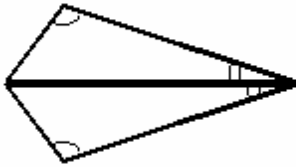
13. Find the slope of a line parallel to the line containing the points  $(-3, 6)$  and  $(-2, 2)$ .

14. Identify the congruent triangles. How do you know they are congruent?



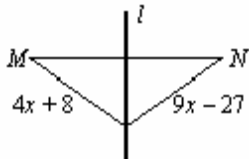
Would HL, ASA, SAS, AAS, or SSS be used to justify that the pair of triangles is congruent?

15.

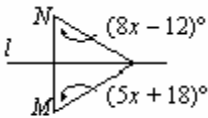


Line  $l$  is the perpendicular bisector of  $\overline{MN}$ .

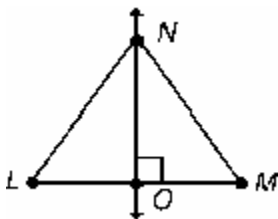
16. Find the value of  $x$ .



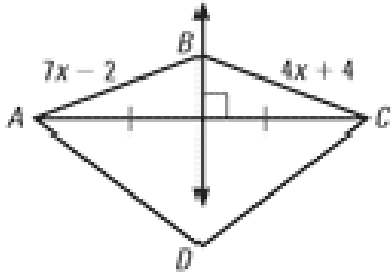
17. Find  $m\angle M$ .



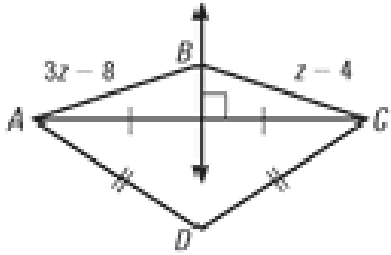
18.  $\overleftrightarrow{NO}$  is the perpendicular bisector of  $\overline{LM}$ . If  $OM = 4$  and  $LN = 6$ , then  $LO = \underline{\hspace{2cm}}$  and  $MN = \underline{\hspace{2cm}}$ . Explain your solutions.



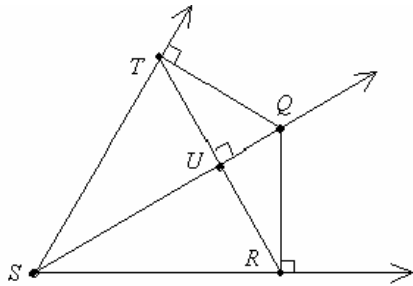
19. Find  $AB$ . Is there enough information to show that  $D$  lies on the vertical line that passes through  $B$ ?



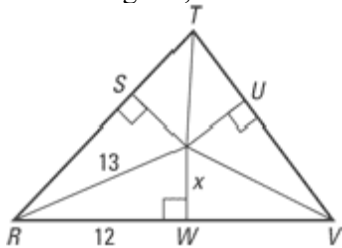
20. Find the value of  $z$ . Is there enough information to show that  $D$  lies on the vertical line that passes through  $B$ ?



21. Given:  $\overrightarrow{SQ}$  bisects  $\angle RST$ . Find  $QR$  if  $UT = 35$  and  $UQ = 120$ . (not drawn to scale)

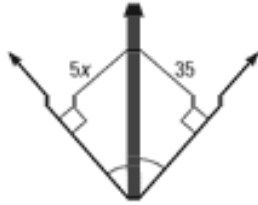


22. In the diagram,  $X$  is the incenter of  $\triangle RTV$ . Find  $XU$ .

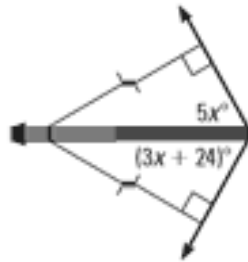


Find the value of  $x$ .

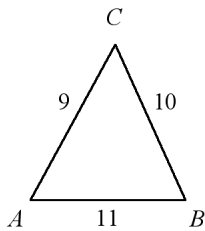
23.



24.



25. Identify the largest angle of  $\triangle ABC$ .



26. Is it possible for a triangle to have sides with the given lengths?  
3 cm, 10 cm, 7 cm

**Other**

27. Two sides of a triangle have lengths 8 and 11. What are the possible lengths of the third side  $x$ ?

28. Two sides of a triangle have lengths 14 and 10. What are the possible lengths of the third side  $x$ ?

## Geometry Mastery Test #5 Review Answer Section

### SHORT ANSWER

1. ANS:  
1

TOP: Lesson 5.1 Midsegment Theorem and Coordinate Proof

2. ANS:  
 $\angle KHF$

TOP: Lesson 5.2 Use Perpendicular Bisectors

3. ANS:  
 $\overline{ML}$

TOP: Lesson 5.5 Use Inequalities in a Triangle

4. ANS:  
15, 25

TOP: Lesson 5.5 Use Inequalities in a Triangle

5. ANS:  
Scalene

TOP: Lesson 4.1 Apply Triangle Sum Properties

6. ANS:  
 $145^\circ$

TOP: Lesson 4.1 Apply Triangle Sum Properties

7. ANS:  
 $91.5^\circ, 21.6^\circ, 66.9^\circ$

TOP: Lesson 4.1 Apply Triangle Sum Properties

8. ANS:  
Side-Side-Side;  $x - 3 = 8, 11$

TOP: Lesson 4.4 Prove Triangles Congruent by SSS

9. ANS:  
 $\overline{AC} \cong \overline{CE}$

TOP: Lesson 4.5 Prove Triangles Congruent by SAS and HL

10. ANS:  
 $x = 28^\circ, y = 76^\circ$

TOP: Lesson 4.8 Use Isosceles and Equilateral Triangles

11. ANS:  
 $y = 9x + 66$

TOP: Lesson 3.5 Write and Graph Equations of Lines

12. ANS:  
 $(-4, 5)$

TOP: Lesson 1.3 Use Midpoint and Distance Formulas

13. ANS:  
 $-4$

TOP: Lesson 3.4 Find and Use Slopes of Lines

14. ANS:  
 $\triangle WXZ \cong \triangle WYZ$ ; SSS

TOP: Lesson 4.4 Prove Triangles Congruent by SSS

15. ANS:  
AAS

TOP: Lesson 4.6 Prove Triangles Congruent by ASA and AAS

16. ANS:  
7

TOP: Lesson 4.7 Use Congruent Triangles

17. ANS:  
 $68^\circ$

TOP: Lesson 4.7 Use Congruent Triangles

18. ANS:  
 $LO = 4$ ,  $MN = 6$ ;  $LO = OM$  by definition of bisector and  $MN = LN$  by the Perpendicular Bisector Theorem.

TOP: Lesson 5.2 Use Perpendicular Bisectors

19. ANS:  
 $AB = 12$ ; no

TOP: Lesson 5.2 Use Perpendicular Bisectors

20. ANS:  
 $z = 6$ ; yes

TOP: Lesson 5.2 Use Perpendicular Bisectors

21. ANS:  
125

TOP: Lesson 5.3 Use Angle Bisectors of Triangles



22. ANS:  
 $XU = 5$

TOP: Lesson 5.3 Use Angle Bisectors of Triangles

23. ANS:  
7

TOP: Lesson 5.3 Use Angle Bisectors of Triangles

24. ANS:  
12

TOP: Lesson 5.3 Use Angle Bisectors of Triangles

25. ANS:  
 $\angle C$

TOP: Lesson 5.5 Use Inequalities in a Triangle

26. ANS:  
no

TOP: Lesson 5.5 Use Inequalities in a Triangle

#### OTHER

27. ANS:  
 $3 < x < 19$

TOP: Lesson 5.5 Use Inequalities in a Triangle

28. ANS:  
 $4 < x < 24$

TOP: Lesson 5.5 Use Inequalities in a Triangle