

# Unit 4 Test Review

## Geometry

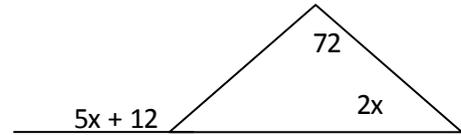
N \_\_\_\_\_

D \_\_\_\_\_ B \_\_\_\_\_

### 4.1 Classifying Triangles

Name the 6 ways we classify triangles. Give at least 3 examples to show the different classifications.

Exterior Angle Theorem: solve for  $x$  using exterior angle theorem:



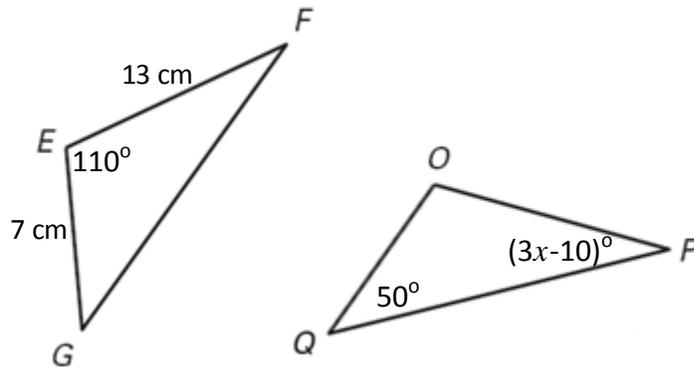
### 4.2 Applying Congruence

1. Two figures are congruent if they have the same \_\_\_\_\_ and \_\_\_\_\_.

2. What is a congruence statement? What can it help us do?

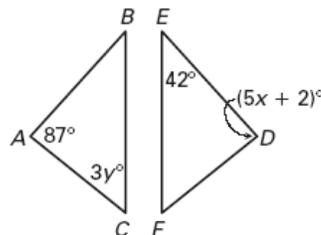
3. In the diagram,  $\triangle EFG \cong \triangle OPQ$ . Complete the statement.

- a)  $\overline{EF} \cong$  \_\_\_\_\_
- b)  $\angle P \cong$  \_\_\_\_\_
- c)  $\angle G \cong$  \_\_\_\_\_
- d)  $m\angle O =$  \_\_\_\_\_
- e)  $QO =$  \_\_\_\_\_
- f)  $\triangle GFE \cong$  \_\_\_\_\_
- g)  $x =$  \_\_\_\_\_



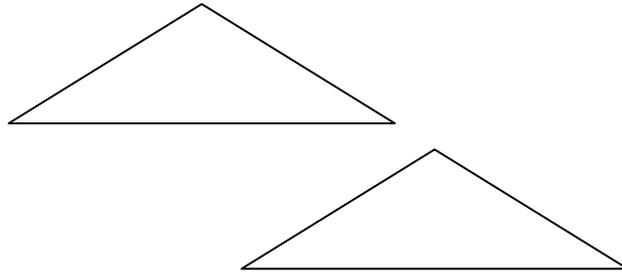
4. What is the third angles theorem?

5. Given **Given**  $\triangle ABC \cong \triangle DEF$ . Find the values of the missing variables.



6. Label the two triangles with the given information and solve for  $x$ ,  $y$ , and  $z$ . Show all work.

Given:  $\triangle APT \cong \triangle WOC$ .  
 $m\angle A = 30^\circ$   
 $m\angle P = 100^\circ$   
 $m\angle W = (y + 20)^\circ$   
 $m\angle O = (x - 20)^\circ$   
 $m\angle C = (z + 30)^\circ$



$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

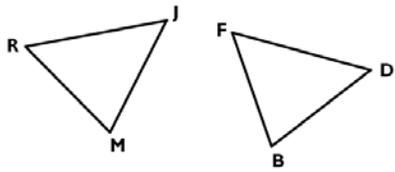
$$z = \underline{\hspace{2cm}}$$

### 4.3-4.5 SSS, SAS, HL, ASA & AAS

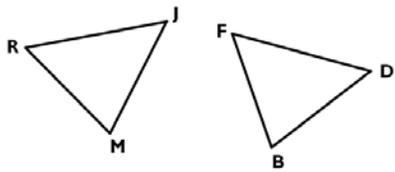
7. Draw two triangles and label them such that the **SSS Postulate** would prove them congruent. Write a congruence statement based on your diagram.
  
8. Draw two triangles and label them such that the **SAS Congruence Postulate** would prove them congruent. Write a congruence statement based on your diagram.
  
9. Draw two triangles and label them such that the **Hypotenuse – Leg** would prove them congruent. Write a congruence statement based on your diagram.
  
10. Draw two triangles and label them such that the **ASA Postulate** would prove them congruent. Write a congruence statement based on your diagram.
  
11. Draw two triangles and label them such that the **AAS Congruence Theorem** would prove them congruent. Write a congruence statement based on your diagram.
  
12. Why doesn't SSA work?

State the third congruence that must be given to prove that  $\triangle JRM \cong \triangle DFB$  using the indicated postulate or theorem.

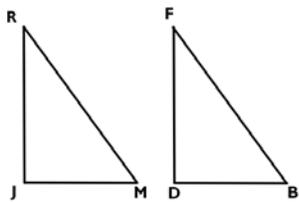
13. . GIVEN:  $\overline{JR} \cong \overline{DF}$ ,  $\overline{RM} \cong \overline{FB}$  \_\_\_\_  $\cong$  \_\_\_\_ Use the SSS Congruence Postulate.



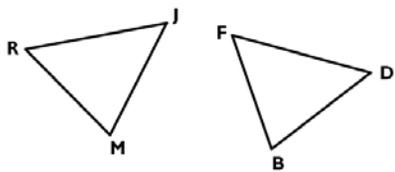
14. GIVEN:  $\overline{JR} \cong \overline{DF}$ ,  $\overline{RM} \cong \overline{FB}$  \_\_\_\_  $\cong$  \_\_\_\_ Use the SAS Congruence Postulate.



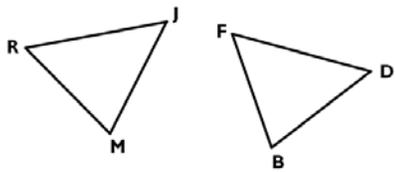
15. GIVEN:  $\overline{JM} \cong \overline{DB}$   $\angle J$  is a right angle and  $\angle J \cong \angle D$  \_\_\_\_  $\cong$  \_\_\_\_ Use the HL Theorem.



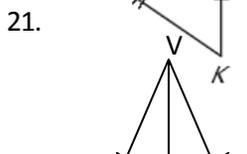
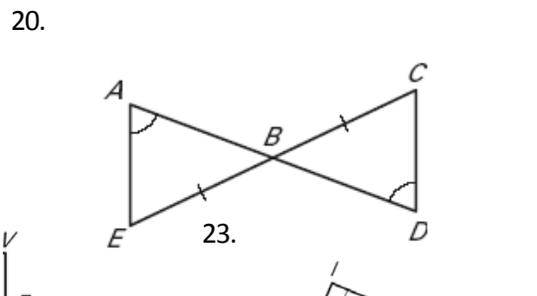
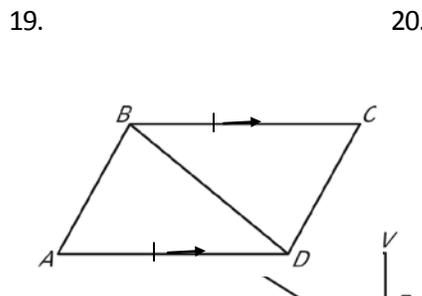
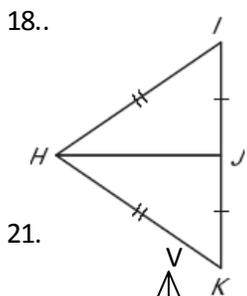
16. GIVEN:  $\angle R \cong \angle F$ ,  $\overline{RM} \cong \overline{FB}$  \_\_\_\_  $\cong$  \_\_\_\_ Use the ASA Congruence Postulate.



17. GIVEN:  $\angle R \cong \angle F$ ,  $\overline{RM} \cong \overline{FB}$  \_\_\_\_  $\cong$  \_\_\_\_ Use the AAS Congruence Theorem.



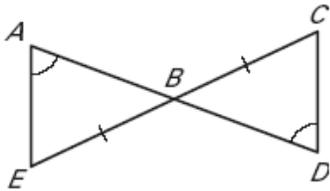
In the figures below **mark any additional angles or sides that you know are congruent just from the given information.** If you **CANNOT** mark any additional angles or sides, write "**Figure Complete**".



For #24 – 26, decide if the following triangles are congruent. For each problem, do the following:  
 MARK YOUR FIGURES!

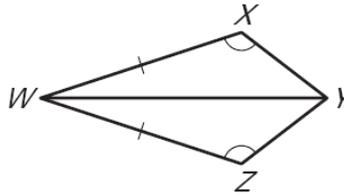
- a) Can these triangles be proven congruent? Write “Yes” or “No”.
- b) Name the congruent triangles (**ONLY if they are congruent**) and
- c) State the postulate or theorem that supports your answer (**ONLY if they are congruent**)

24.

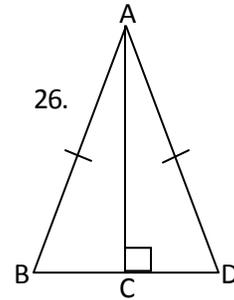


- a) \_\_\_\_\_
- b) \_\_\_\_\_  $\cong$  \_\_\_\_\_
- c) \_\_\_\_\_

25.



- a) \_\_\_\_\_
- b) \_\_\_\_\_  $\cong$  \_\_\_\_\_
- c) \_\_\_\_\_

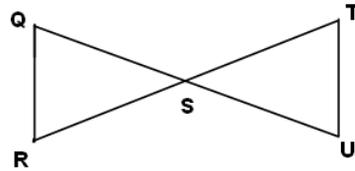


26.

- a) \_\_\_\_\_
- b) \_\_\_\_\_  $\cong$  \_\_\_\_\_
- c) \_\_\_\_\_

27. Prove that  $\triangle QRS \cong \triangle TUS$

Given: S is a midpoint of  $\overline{QU}$  and  $\overline{RT}$



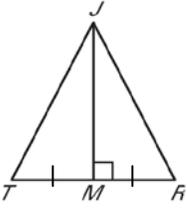
Statements	Reasons

28. Prove that  $\triangle DEF \cong \triangle HGF$



31. Write an explanation IN COMPLETE SENTENCES of how you can prove the statement is true. Make sure to justify each piece of information with a valid reasoning. Mark your pictures as you go. Remember to use one of the five postulates/theorems (SSS, SAS, ASA, AAS, HL).

Prove that  $\overline{JT} \cong \overline{JR}$




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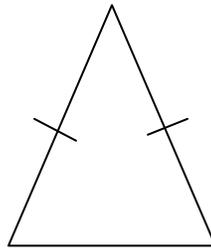
## 4.7 Isosceles and Equilateral Triangles

32. What is the **Base Angles Theorem**?

33. Mark the base angles in the triangle A & B.

Mark the vertex V.

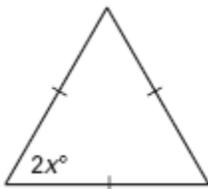
Legs are:



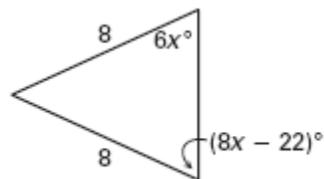
34. If a triangle is equilateral then it must also be \_\_\_\_\_.

In 35 – 39 solve for the missing variable.

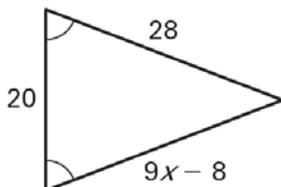
35.



36.



37.



38.

