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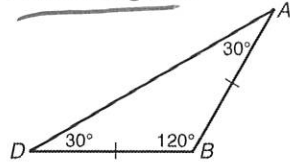
Date: _____

Period: _____

Key

Geometry Chapter 4 Study Guide

1. Classify $\triangle ABC$ using the **Side Lengths**.



isosceles

2. How many sides must be congruent in an isosceles triangle?

2

3. Which pair of angle measures CANNOT be the acute angles of a right triangle?

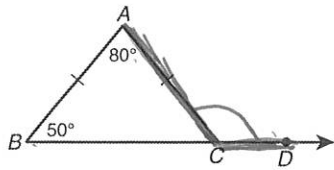
A 29° and $61^\circ = 90$

B 30° and $60^\circ = 90$

C 38° and $53^\circ = 91^\circ$

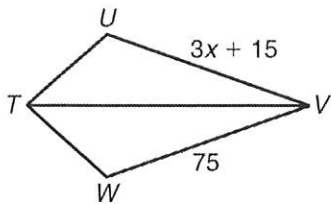
D 45° and $45^\circ = 90$

4. What is $m\angle ACD$?



$$m\angle ACD = 50 + 80 = 130^\circ$$

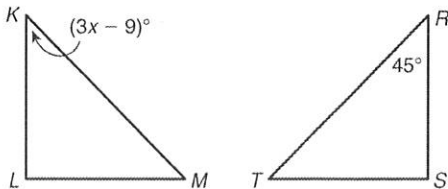
5. Given: $\triangle TUV \cong \triangle TWV$. What is the value of x ?



$$\begin{aligned} 3x + 15 &= 75 \\ -15 & -15 \\ \hline 3x &= 60 \\ \frac{3x}{3} &= \frac{60}{3} \end{aligned}$$

$x = 20$

6. If $\triangle KLM \cong \triangle RST$, find the value of x .



$$\begin{aligned} 3x - 9 &= 45 \\ +9 & +9 \\ \hline 3x &= 54 \\ \frac{3x}{3} &= \frac{54}{3} \end{aligned}$$

$x = 18$

$\angle Y \cong \angle Q$

7. Given: $\angle X \cong \angle P$, ~~$\angle Y \cong \angle Z$~~ , $\angle Z \cong \angle R$, $\overline{XY} \cong \overline{PQ}$, $\overline{YZ} \cong \overline{QR}$ and $\overline{XZ} \cong \overline{PR}$ Which is a correct congruence statement?

- ~~A. $\triangle XYZ \cong \triangle QRP$~~
- ~~B. $\triangle XYZ \cong \triangle RQP$~~

- C. $\triangle XYZ \cong \triangle PQR$**
- ~~D. $\triangle XYZ \cong \triangle PRQ$~~

8. The angles of a triangle measure 4° , 86° , and 90° . What is the correct classification of this triangle?

Right \triangle

9. Which could be the angle measures of an acute triangle?

- A. $35^\circ-56^\circ-89^\circ$**
- ~~B. $33^\circ-58^\circ-91^\circ$~~

- ~~C. $34^\circ-56^\circ-90^\circ$~~
- ~~D. $32^\circ-56^\circ-92^\circ$~~

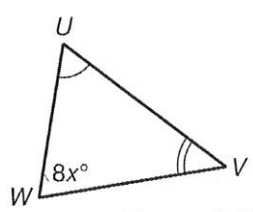
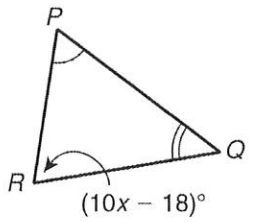
10. Two angles of a triangle measure 22° and 53° . What is the measure of the third angle?

$180 - 22 - 53 = 105^\circ$

11. What is the value of x if the acute angles of a right triangle measure $8x^\circ$ and $12x^\circ$?

$8x + 12x = 90$ $\frac{20x}{20} = \frac{90}{20}$ **$x = 4.5$**

12. In the figure, $\triangle PQR \cong \triangle UVW$. What is $m\angle R$?



$10x - 18 = 8x$
 $-10x \quad -10x$

 $-18 = -2x$
 $\frac{-18}{-2} = \frac{-2x}{-2}$

$8 \cdot 9 = 72$

$m\angle R = 72^\circ$

$9 = x$

$x = 9$

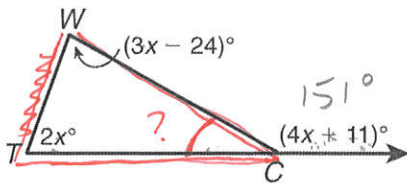
13. If $\triangle KMQ \cong \triangle WJR$, which segment is congruent to \overline{RW} ?

\overline{QK}

14. Which angle is congruent to $\angle Z$ if $\triangle ZLV \cong \triangle SPN$?

$\angle S$

15. What is $m\angle TCW$?



$$3x - 24 + 2x = 4x + 11$$

$$\begin{array}{r} 5x - 24 = 4x + 11 \\ -4x \quad -4x \\ \hline x - 24 = 11 \\ +24 \quad +24 \\ \hline x = 35 \end{array}$$

$$4(35) + 11 = 151$$

$$\begin{array}{r} 180 \\ -151 \\ \hline \end{array}$$

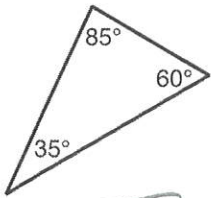
$$m\angle TCW = 29^\circ$$

16. Suppose $\angle S \cong \angle N$, $\angle J \cong \angle I$, $\angle A \cong \angle T$, $\overline{JS} \cong \overline{IN}$, $\overline{JA} \cong \overline{IT}$, and $\overline{AS} \cong \overline{TN}$. Which is true?

- ~~A~~ $\triangle JSA \cong \triangle ITN$
~~B~~ $\triangle JSA \cong \triangle NTI$

- C** $\triangle JSA \cong \triangle INT$
~~D~~ $\triangle JSA \cong \triangle TNI$

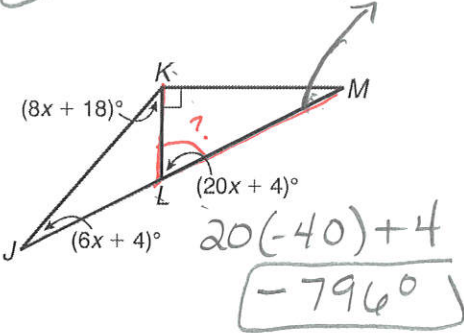
17. Classify the triangle using Angle Measures.



Acute

Typo

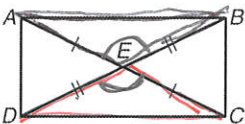
18. Given that $m\angle KMJ = (166 - 18x)^\circ$ what is $m\angle KLM$?



$$90 + 20x + 4 + 166 - 18x = 180$$

$$\begin{array}{r} 2x + 260 = 180 \\ -260 \quad -260 \\ \hline 2x = -80 \\ \frac{2x}{2} = \frac{-80}{2} \quad x = -40 \end{array}$$

19. Which CAN be used to prove $\triangle AEB \cong \triangle DEC$?



- A** SAS
 C ASA

- B AAS
 D HL

20. What is the measure of one of the base angles of an isosceles triangle if the measure of the vertex angle is 98° ?

$$\begin{array}{r} 180 \\ -98 \\ \hline 82^\circ \end{array}$$


$$\frac{82}{2} = 41^\circ$$

21. Suppose $\triangle MWR \cong \triangle CYQ$, $MW = 8$, $WR = 9$, and $CQ = 10$. What is MR ?

$$\overline{MR} \cong \overline{CQ}$$

$$10$$

22. One angle of an equilateral triangle measures $(2x - 40)^\circ$. What is the value of x ?



$$\frac{180}{3} = 60^\circ$$

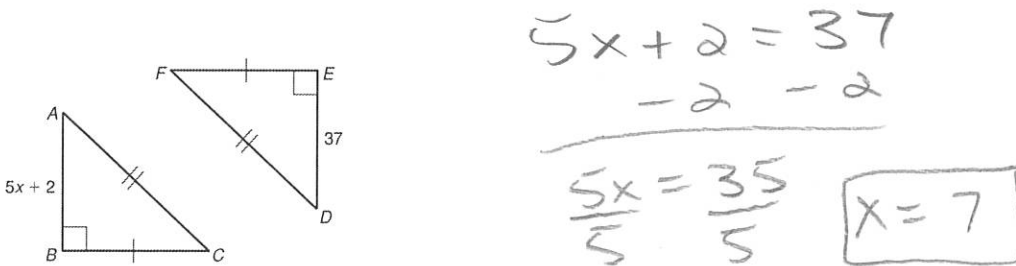
$$\begin{array}{r} 2x - 40 = 60 \\ +40 \quad +40 \\ \hline 2x = 100 \\ \frac{2x}{2} = \frac{100}{2} \end{array}$$

$x = 50$

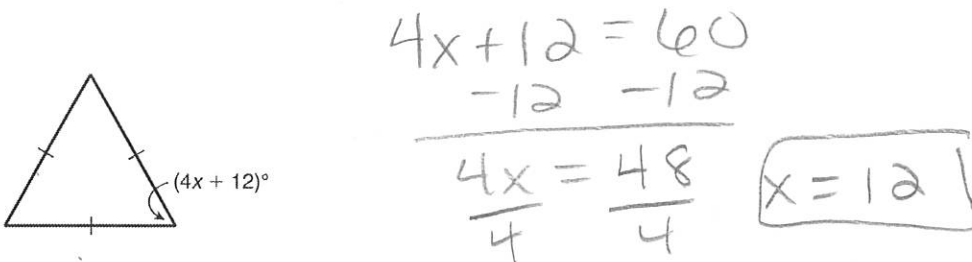
23. Which postulate or theorem can you use to prove $\triangle GFH$ and $\triangle MLO$?



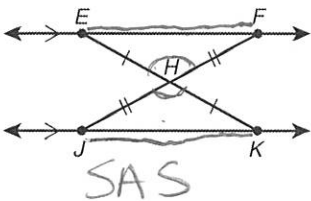
24. Which value for x proves that $\triangle ABC \cong \triangle DEF$ by SSS?



25. What is the value of x ?



26. In the figure, H is the midpoint of \overline{EK} and \overline{FJ} . What reason can be used to prove $\overline{EF} \cong \overline{JK}$?



A AAS

D CPCTC

B HL

C Def. of bisects

27. Find the value of x .

