

KEY

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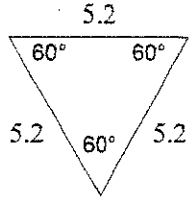
Geometry -- Chapter 4 Test Review

4.1 Classifying Triangles by Angle Measures or Side Lengths

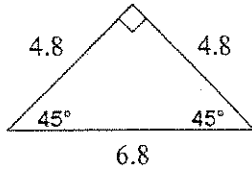
1. List all Triangle Classifications for Angle Measures: Acute, Right, Obtuse, Equiangular

2. List all Triangle Classifications by Side Lengths: Scalene, Isosceles, Equilateral

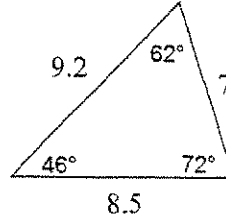
3. Classify each triangle by angle measures and side lengths.



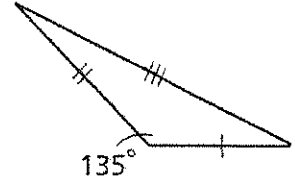
Equilateral
Equiangular



Isosceles
Right

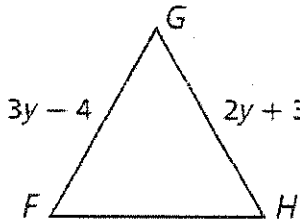


Acute
Scalene



Obtuse
Scalene

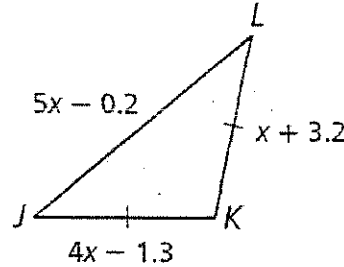
4. Given equilateral triangle FGH, find the length of FH.



$$\begin{array}{r} 3y - 4 = 2y + 3 \\ -2y \quad -2y \\ \hline y - 4 = 3 \\ +4 \quad +4 \\ \hline y = 7 \end{array}$$

$$FH = GH = 2(7) + 3 \Rightarrow \boxed{FH = 17}$$

5. Solve for x.

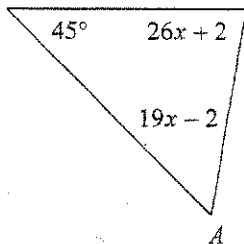


$$\begin{array}{r} 4x - 1.3 = x + 3.2 \\ -x \quad -x \\ \hline 3x = 4.5 \\ \frac{3x}{3} = \frac{4.5}{3} \\ \boxed{x = 1.5} \end{array}$$

4.2 Angle Relationships in Triangles (Angle Sum Theorem, Exterior Angle Theorem)

6. All angles inside a triangle add up to equal: 180°

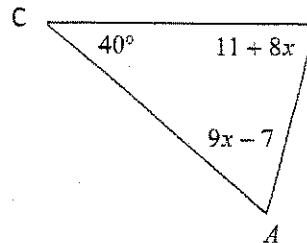
7. Find the measure of Angle A.



$$\begin{array}{l} m\angle A = 19(3) - 2 \\ \boxed{m\angle A = 55^\circ} \end{array}$$

$$\begin{array}{l} 45 + (26x + 2) + (19x - 2) = 180 \\ 45x + 45 = 180 \\ -45 \quad -45 \\ \hline 45x = 135 \\ \frac{45x}{45} = \frac{135}{45} \\ x = 3 \end{array}$$

8. List the angles in order from least to greatest.

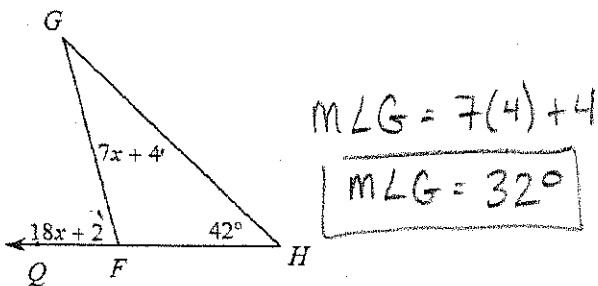


$$\begin{array}{l} m\angle B = 11 + 8(8) = 75 \\ m\angle A = 9(8) - 7 = 65 \end{array}$$

$\boxed{\angle C, \angle A, \angle B}$

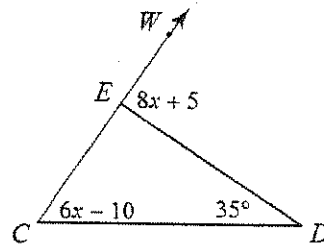
$$\begin{array}{l} B \quad 40 + 11 + 8x + 9x - 7 = 180 \\ 17x + 44 = 180 \\ -44 \quad -44 \\ \hline 17x = 136 \\ \frac{17x}{17} = \frac{136}{17} \\ x = 8 \end{array}$$

9a. Find the measure of angle G.



$$\begin{array}{r}
 18x + 2 = 7x + 4 + 42 \\
 -7x \quad -7x \\
 \hline
 11x + 2 = 46 \\
 -2 \quad -2 \\
 \hline
 11x = 44 \\
 \frac{11x}{11} = \frac{44}{11} \quad x = 4
 \end{array}$$

9b. Find the measure of angle WED.



$$\begin{array}{r}
 m\angle WED = m\angle C + m\angle D \\
 8x + 5 = 6x - 10 + 35 \\
 8x + 5 = 6x + 25 \\
 -6x \quad -6x \\
 \hline
 2x + 5 = 25 \\
 -5 \quad -5 \\
 \hline
 2x = 20 \\
 \frac{2x}{2} = \frac{20}{2} \\
 x = 10
 \end{array}$$

$$\begin{array}{l}
 m\angle WED = 8(10) + 5 \\
 m\angle WED = 85^\circ
 \end{array}$$

4.3 Triangle Congruence

Given: $\triangle JKL \cong \triangle DEF$. Identify the congruent corresponding parts.

10. $\overline{KL} \cong \underline{\quad? \quad}$
 $\underline{\overline{EF}}$
11. $\overline{DF} \cong \underline{\quad? \quad}$
 $\underline{\overline{JL}}$
12. $\angle K \cong \underline{\quad? \quad}$
 $\underline{\angle E}$
13. $\angle F \cong \underline{\quad? \quad}$
 $\underline{\angle L}$

Given: $\triangle PQR \cong \triangle STU$. Find each value.

14. PQ

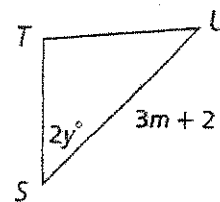
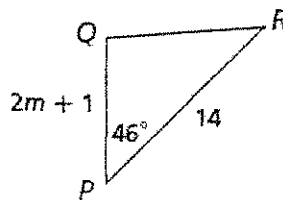
Solve for m.

$$\begin{array}{r}
 3m + 2 = 14 \\
 -2 \quad -2 \\
 \hline
 3m = 12 \\
 \frac{3m}{3} = \frac{12}{3} \\
 m = 4
 \end{array}$$

$PQ = 2(4) + 1$
 $PQ = 9$

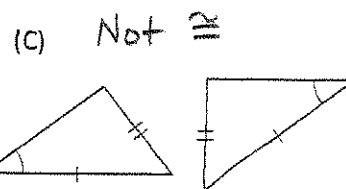
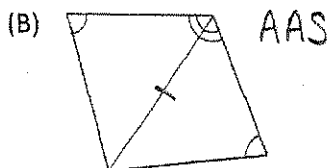
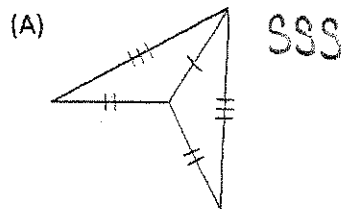
15. y

$$\begin{array}{r}
 2y = 46 \\
 \frac{2y}{2} = \frac{46}{2} \\
 y = 23
 \end{array}$$

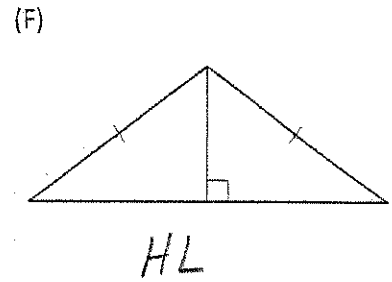
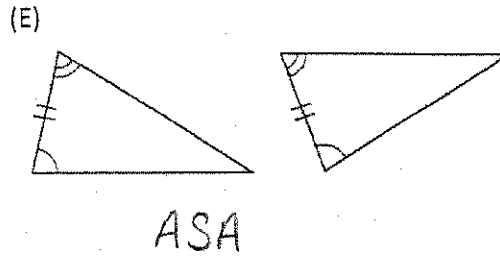
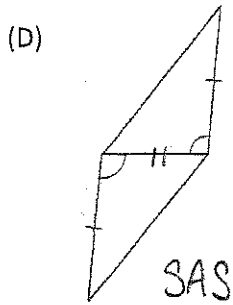


4.4-4.5 Triangle Congruence Shortcuts (SSS, SAS, ASA, AAS, HL)

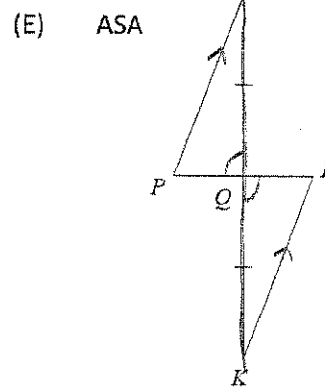
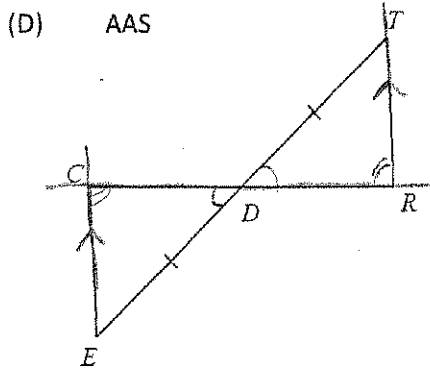
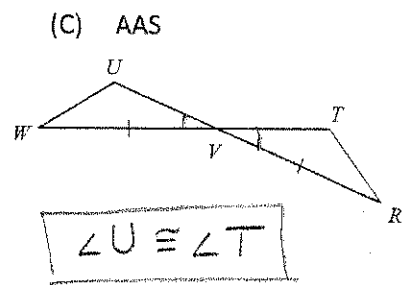
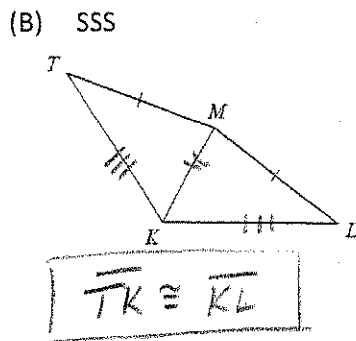
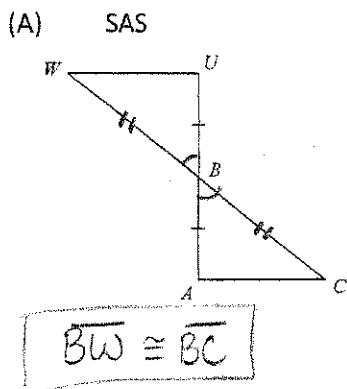
16. If possible, tell which shortcut will prove the two triangles are congruent?



(16 Continued...Which shortcut proves the triangles are congruent??)



17. State what extra info is needed to prove the triangles are congruent by the given shortcut.



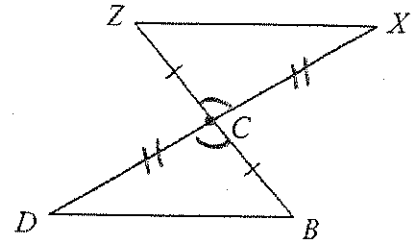
- A) $\overline{CD} \cong \overline{DR}$
- B) $\angle CED \cong \angle DTR$
- C) $\angle CDE \cong \angle TDR$
- D) $\overline{CE} \parallel \overline{TR}$

- A) $\angle POR \cong \angle IOK$
- B) $\overline{PQ} \cong \overline{IQ}$
- C) $\overline{PR} \parallel \overline{KI}$
- D) $\overline{RQ} \parallel \overline{QK}$

4.4 - 4.6 Proving Triangles Congruent and using CPCTC

18. Given: $\overline{ZC} \cong \overline{CB}$, C is the midpoint of DX

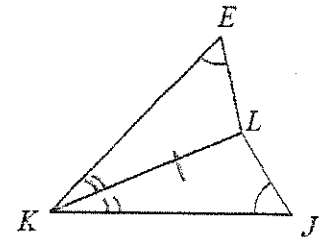
Prove: $\overline{ZX} \cong \overline{DB}$



Statements	Reasons
$\overline{ZC} \cong \overline{CB}$	Given
C mdpt of \overline{DX}	Given
$\overline{DC} \cong \overline{CX}$	Def. of Mdpt
$\angle ZCX \cong \angle DCB$	Vertical Angles Theorem
$\triangle ZCX \cong \triangle DCB$	SAS
$\overline{ZX} \cong \overline{DB}$	CPCTC

19. Given: $\angle E \cong \angle J$, \overline{LK} bisects $\angle EKJ$

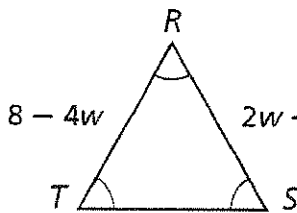
Prove: $\overline{EL} \cong \overline{LJ}$



Statements	Reasons
$\angle E \cong \angle J$	Given
\overline{LK} bisects $\angle EKJ$	Given
$\angle EKL \cong \angle JKL$	Def. of Bisector
$\overline{KL} \cong \overline{KL}$	Reflexive POC
$\triangle EKL \cong \triangle JKL$	AAS
$\overline{EL} \cong \overline{LJ}$	CPCTC

4.8 - ISOSCELES and EQUILATERAL TRIANGLES

20. Find length of TS. Equiangular \rightarrow Equilateral



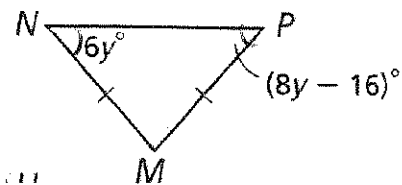
$$8 - 4w = 2w + 5$$

$$\begin{array}{r} 8 - 4w = 2w + 5 \\ -5 + 4w \quad +4w - 5 \\ \hline 3 = 6w \\ \frac{3}{6} = \frac{6w}{6} \\ \frac{1}{2} = w \end{array}$$

$$TS = RS = 2\left(\frac{1}{2}\right) + 5$$

$$\boxed{TS = 6}$$

21. Isosceles \rightarrow Base Angles are \cong
Find the measure of angle N.



$$\begin{array}{r} 8y - 16 = 6y \\ -8y \quad -8y \\ \hline -16 = -2y \\ \frac{-16}{-2} = \frac{-2y}{-2} \\ 8 = y \end{array}$$

$$\begin{array}{l} m\angle N = 6(8) \\ m\angle N = 48^\circ \end{array}$$