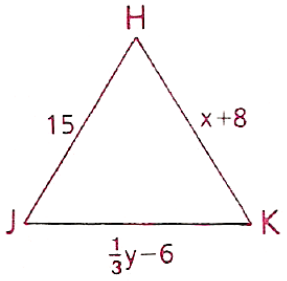
Name: _____

8.3 ~ Triangles in Proofs

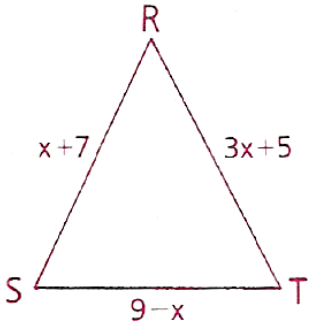
Past due on: _____ Period _____

1. If $\triangle HJK$ is equilateral, what are the values of x and y?



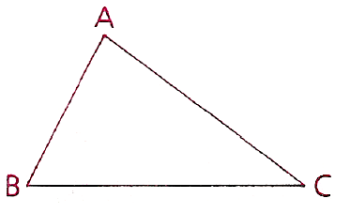
2. In $\triangle RST$, $RS = x + 7, RT = 3x + 5, \& ST = 9 - x$.

   If $\triangle RST$ is isosceles, is it also equilateral? Explain your reasoning.



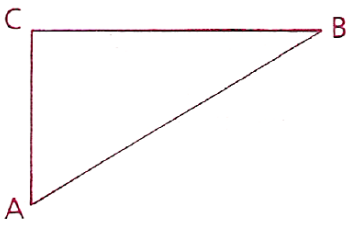
3. $AB = x + 3$
   $AC = 3x + 2$
   $BC = 2x + 3$
   Perimeter of $\triangle ABC$ = 20

   Show that $\triangle ABC$ is scalene.



4. $\overline{AC} \perp \overline{BC}$
   $\angle C = (3x)^{\circ}$
   $BC = x + 20$
   $AC = 2x - 20$

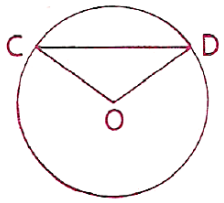
   Is $\triangle ABC$ isosceles? Explain your reasoning.



PROOFS MUST BE DONE ON PROOF PAPER.

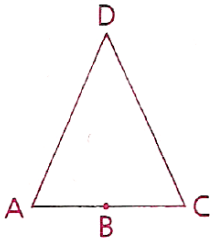
5. Given: $\odot O$

   Prove: $\triangle COD$ is isosceles



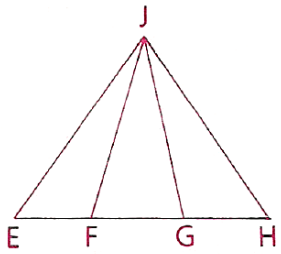
6. Given: $\overline{AD}$ & $\overline{CD}$ are legs of isosceles $\triangle ACD$
   B is the midpoint of $\overline{AC}$

   Prove: $\triangle ADB \cong \triangle CDB$



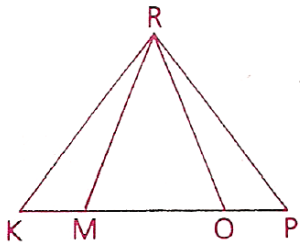
7. Given: $\overline{JF} \cong \overline{JG}$
   F and G trisect $\overline{EH}$
   $\angle EFJ \cong \angle HGJ$

   Prove: $\triangle EHJ$ is isosceles



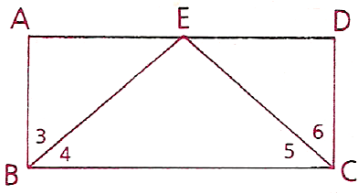
8. Given: $\overline{KR} \cong \overline{PR}$
   $\angle KRM \cong \angle PRO$

   Prove: $\overline{RM} \cong \overline{RO}$



9. Given: $\angle 3 \cong \angle 6$
   $\angle 3$ is comp. to $\angle 4$
   $\angle 6$ is comp. to $\angle 5$

   Prove: $\triangle EBC$ is isosceles



10. Given: $\angle 5 \cong \angle 6$
    $\overline{JG}$ is the altitude to $\overline{FH}$

    Prove: $\triangle FJH$ is isosceles