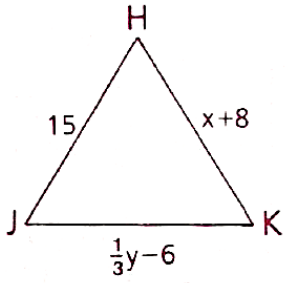
 Name: _____

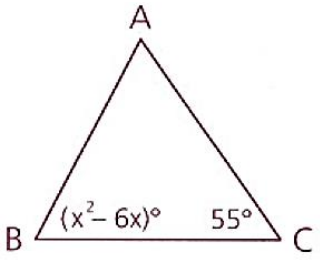
5.8 ~ Isosceles Triangles in Proofs

Past due on: _____ Period _____

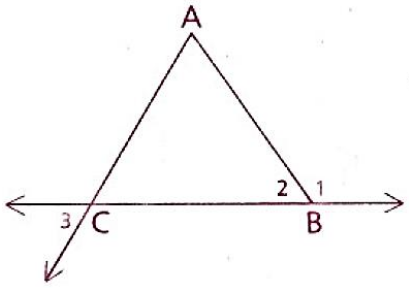
1. If $\triangle HJK$ is equilateral, what are the values of x and y?



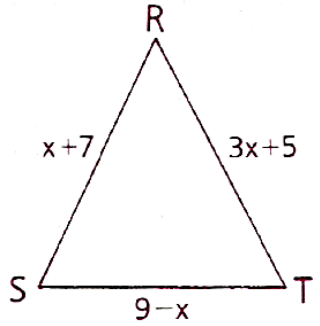
2. Given: $\overline{AB} \cong \overline{AC}$
Find x.



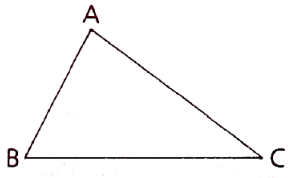
3. Given: isosceles $\triangle ABC$ with base $\overline{BC}$, $m\angle 1 = 5x$, $m\angle 3 = 2x + 12$
Find: $m\angle 2$



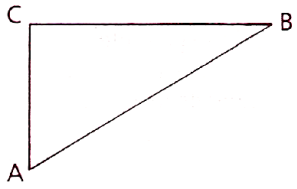
4. Given: $RS = x + 7, RT = 3x + 5, ST = 9 - x$
If $\triangle RST$ is isosceles, is it also equilateral? Explain your reasoning.



5. Given: $AB = x + 3$, $AC = 3x + 2$, $BC = 2x + 3$; the perimeter of $\triangle ABC = 20$
Find the value of x and show that $\triangle ABC$ is scalene.



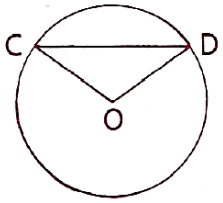
6. Given: $\overline{AC} \perp \overline{BC}$, $\angle C = 3x$, $BC = x + 20$, & $AC = 2x - 20$
   a. Find the value of x.
   b. Is $\triangle ABC$ isosceles? Explain your reasoning.



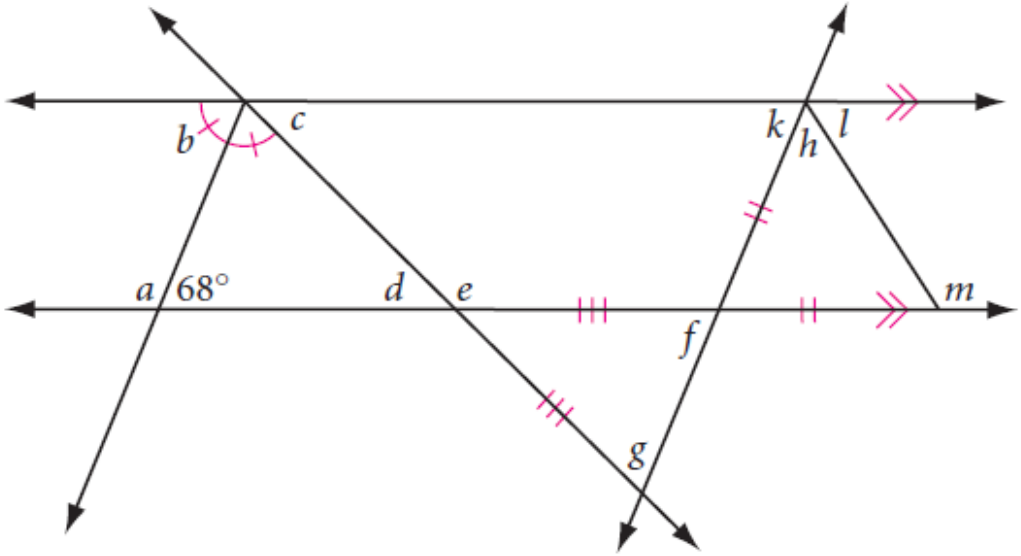
7. An isosceles triangle has base angles that measure $7x^2$ & $3 - 20x$.
   a. Set up and solve a quadratic equation to find the value of x that makes sense.
   b. What are the measures of all three angles?

8. Given: $\odot O$

Explain why is $\triangle COD$ is isosceles.

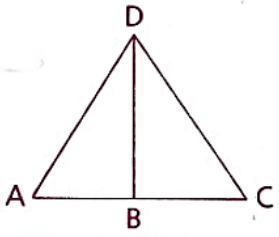


9. Find the indicated angle measures.



10. Given: $\overline{AD}$ & $\overline{CD}$ are legs of isosceles $\triangle ACD$
$\overline{DB}$ is a median

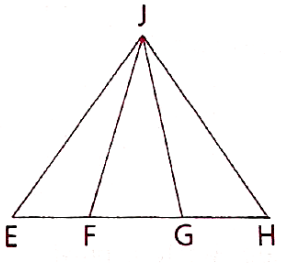
Prove: $\triangle ADB \cong \triangle CDB$



STATEMENTS	REASONS

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

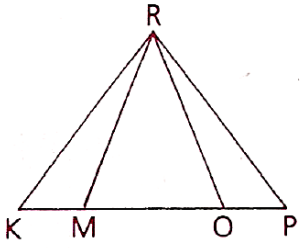
Prove: $\triangle EHJ$ is isosceles



STATEMENTS	REASONS

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

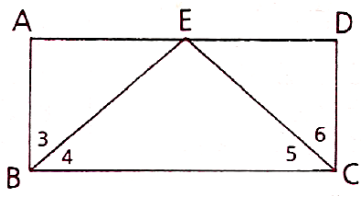
Prove: $\overline{RM} \cong \overline{RO}$



STATEMENTS	REASONS

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

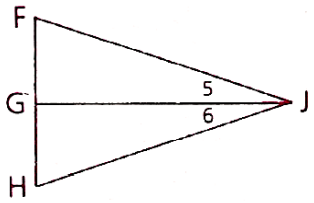
Prove: $\triangle EBC$ is isosceles



STATEMENTS	REASONS

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

Prove: $\triangle FJH$ is isosceles



STATEMENTS	REASONS