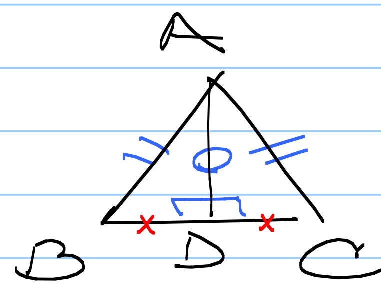
Note Title 10/27/2015

GIVEN

7 Prove: An altitude of an equilateral triangle is also a median of the triangle.

PROVE



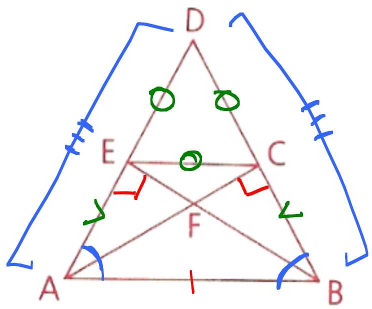
G: $\triangle ABC$ equilat
$\overline{AD}$ alt

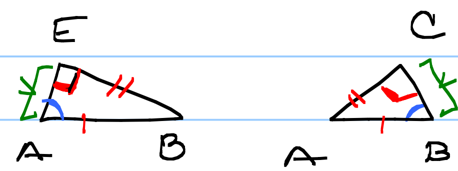
P: $\overline{AD}$ median

1. $\overline{AD}$ alt	1. given
rt∠ 2. $\angle ADB$ & $\angle ADC$ rt∠s	2. alt ⇒ rt∠
3. $\triangle ABC$ equilat	3. given
H 4. $\overline{AB} \cong \overline{AC}$	4. equilat ⇒ ≅ segs
L 5. $\overline{AD} \cong \overline{AD}$	5. RF
6. $\triangle ADB \cong \triangle ADC$	6. HL (2 4 5)
7. $\overline{BD} \cong \overline{DC}$	7. CPCTC (6)
8. $\overline{AD}$ med	8. ≅ seg ⇒ median

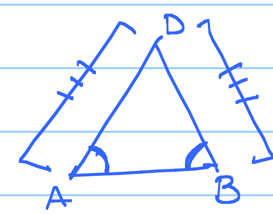
16 Given: $\overline{BE} \perp \overline{AD}$, $\overline{AC} \perp \overline{BD}$,
$\overline{AC} \cong \overline{BE}$, $\overline{DE} \cong \overline{EC}$

Prove: $\triangle DEC$ is equilateral.





	Statements	Reasons
	1. $\overline{BE} \perp \overline{AD}$ & $\overline{AC} \perp \overline{BD}$	1. Given
rt∠	2. $\angle BEA$ & $\angle ACB$ Right∠s	2. $\perp \Rightarrow$ RT∠s (1)
H	3. $\overline{AB} \cong \overline{BA}$	3. Ref
L	4. $\overline{AC} \cong \overline{BE}$	4. Given
	5. $\triangle BEA \cong \triangle ACB$	5. HL(234)
	6. $\overline{AE} \cong \overline{BC}$	6. CPCTC(5)
	7. $\angle EAB \cong \angle CBA$	7. CPCTC
	8. $\overline{DB} \cong \overline{AD}$	8. $\triangle \Rightarrow \triangle$
	9. $\overline{DE} \cong \overline{DC}$	9. Subtract
	10. $\overline{DE} \cong \overline{EC}$	10. Given
	11. $\overline{DC} \cong \overline{DE} \cong \overline{EC}$	11. Trans
	12. $\triangle DEC$ equilat	12. 3≅ sds ⇒ equilat



$\triangle \Rightarrow \triangle$

1 Triangle

≅ △s

1. HL
2. SSS

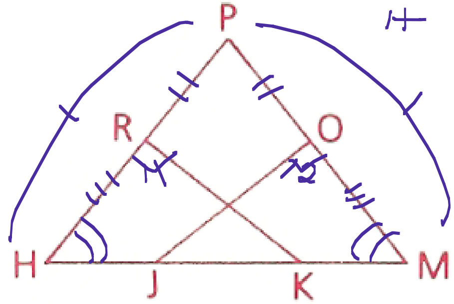
} No prs of ≅ ∠s

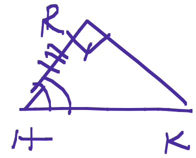
3. ASA
4. SAS

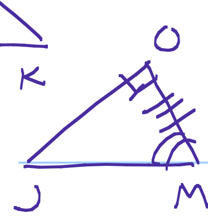
} need ≅ ∠s

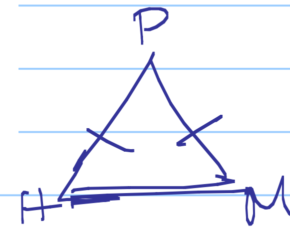
9 Given: $\overline{RK} \perp \overline{HR}$,
$\overline{JO} \perp \overline{PM}$,
$\overline{PH} \cong \overline{PM}$,
$\overline{PR} \cong \overline{PO}$

Conclusion: $\overline{RK} \cong \overline{JO}$









	1. $\overline{RK} \perp \overline{HR}$ & $\overline{JO} \perp \overline{PM}$	1. Given
	2. $\angle 1$ & $\angle 2$ rt $\angle$s	2. $\perp \Rightarrow$ rt $\angle$s (1)
A	3. $\angle 1 \cong \angle 2$	3. rt $\angle$s $\Rightarrow \cong \angle$s (2)
	4. $\overline{PH} \cong \overline{PM}$	4. Given
	5. $\overline{PR} \cong \overline{PO}$	5. Given
S	6. $\overline{RH} \cong \overline{OM}$	6. Subtract (4&5)
A	7. $\angle H \cong \angle M$	7. $\triangle \Rightarrow \triangle$
	8. $\triangle HRK \cong \triangle MOJ$	8. ASA (3 6 7)
	9. $\overline{RK} \cong \overline{OJ}$	9. CPCTC (8)

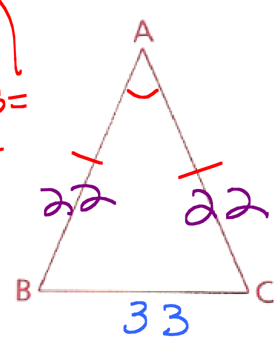
20 Given: $\angle A$ is the vertex of an isosceles $\triangle$.

- The number of degrees in $\angle B$ is twice the number of centimeters in $\overline{BC}$.
- The number of degrees in $\angle C$ is three times the number of centimeters in $\overline{AB}$.

$m\angle B = x + 6$, $= 66$
$m\angle C = 2x - 54 = 66$

Find: The perimeter of $\triangle ABC = 2(22) + 33 = 77$

AB= AC



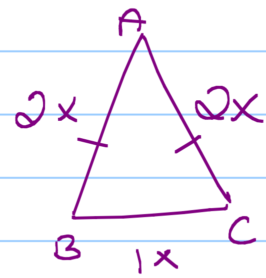
$AB = AC \rightarrow$
$\angle B = \angle C$
$x + 6 = 2x - 54$
$60 = x$

$66 = 2(BC)$
$33 = BC$

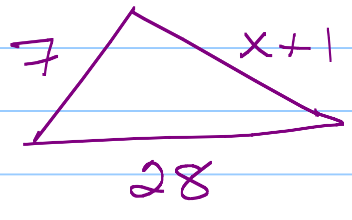
$66 = 3(AB)$
$22 = AB$

RATIO $\Longrightarrow$ "x"

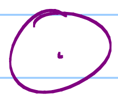
Ratio legs to base isos $\triangle$ is $2:1$.
Perimeter is 25
find x.



$5x = 25$
$x = 5$



DIFF < (x+1) < SUM
$21 < x + 1 < 35$
$20 < x < 34$



FORMULAS

$A = \pi r^2$

$C = \pi d$
$C = \pi 2r$

Exact $\Rightarrow$ leave in terms of π
Example: If $r = 3$ then EXACT $\boxed{A = 9\pi \ \& \ C = 6\pi}$