BE - Geometry 1 Tuesday 10-25-11

1. List the 6 combinations of sides and angles and identify the ones that CAN be used for $\triangle \cong$ and the ones that CANNOT.

2. Find the distance between $(12,3), (-8,3)$

3. Find the EOL through $(12,3), (-8,3)$

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1. SSS, SAS, ASA, AAS — OK
   AAA, SSA — NOT OK

2. $(12,3), (-8,3)$ $\quad d^2 = (3-3)^2 + (-8-12)^2$
   (3 − 3: rise; −8 − 12: run)
   $d^2 = (-20)^2 = 400$
   $\boxed{d = 20}$

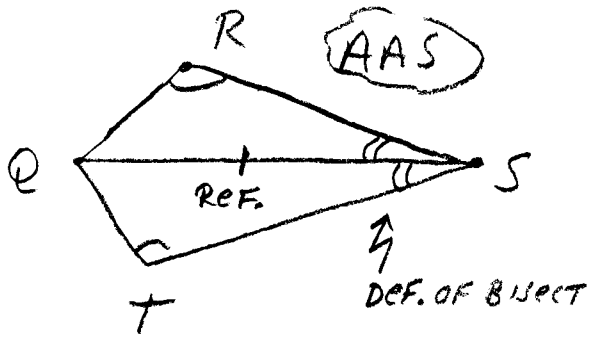
3. $\frac{\text{rise}}{\text{run}} = \frac{0}{-20} = 0 = m$ horizontal line stuck on $y = 3$
   $\therefore \boxed{y = 3}$

Homework Review Pg 210 #6 & 7

⑥ Given QS bisects $\angle RST$

$\angle R \cong \angle T$

Prove: $\triangle QRS \cong \triangle QTS$



STATEMENT	REASON
$\angle QSR \cong \angle QST$	Given, def. of bisect
$\angle R \cong \angle T$	Given
$\overline{QS} \cong \overline{QS}$	Reflexive Prop.
$\triangle QRS \cong \triangle QTS$	AAS

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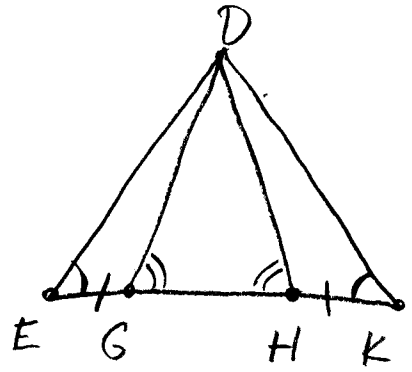
⑦ Given: $\angle E \cong \angle K$

$\angle DGH \cong \angle DHG$

$\overline{EG} \cong \overline{KH}$

Prove: $\triangle EGD \cong \triangle KHD$



$m\angle EGD = 180 - \angle DGH$

$m\angle EGD = 180 - \angle DHG$ Since $\angle DGH \cong \angle DHG$

$m\angle KHD = 180 - \angle DHG$ $\therefore \angle EGD \cong \angle KHD$ by subst.

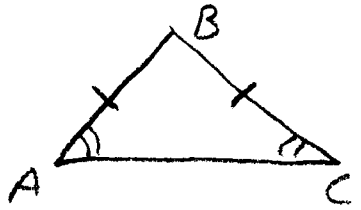
STATEMENT	REASON
$\angle E \cong \angle K$	Given
$\overline{EG} \cong \overline{KH}$	Given
$\angle EGD \cong \angle KHD$	Substitution
$\triangle EGD \cong \triangle KHD$	ASA

Ch. 4-6 Isosceles Triangles

Theorem 4.9 (Pg 216)

Isosceles △ Theorem

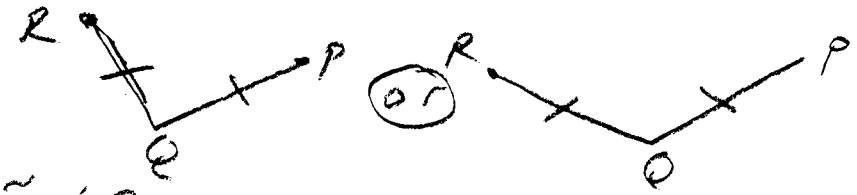
If 2 sides of a △ are ≅, then the ∠s opposite the 2 ≅ sides are ≅



If $\overline{AB} \cong \overline{BC}$ then $\angle A \cong \angle C$

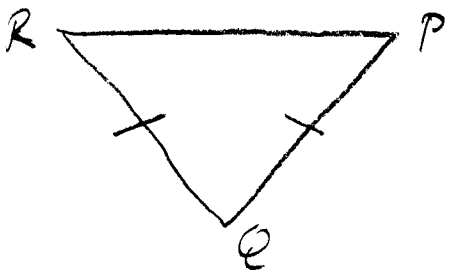
ALSO: If 2 ∠s ≅ then the 2 opposite sides ≅

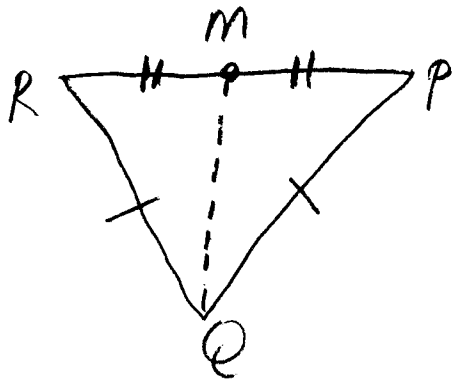
Proof: take any 2 equal sides



Show $\angle P \cong \angle R$

Given:





$\overline{RQ} \cong \overline{PQ}$ Given

Construct midpoint From Q to $\overline{RP}$

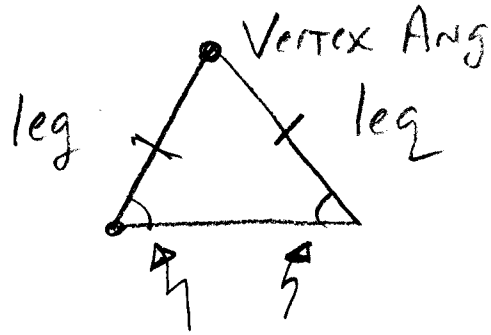
$\overline{QM} \cong QM$ Reflexive

$\overline{RM} \cong \overline{PM}$ Given, def. of midpoint

$\triangle RMQ \cong \triangle PMQ$ SSS

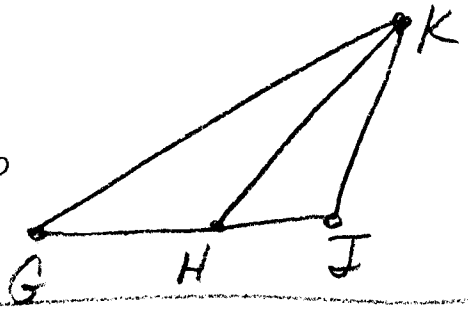
$\angle P \cong \angle R$ CPCTC

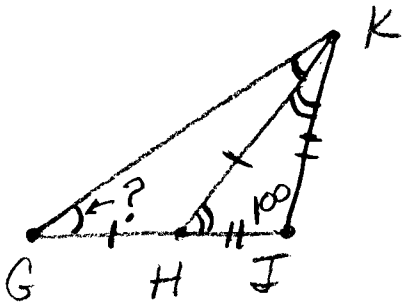
Isosceles △ Vocabulary



EX 2 PG 217

If $\overline{GH} \cong \overline{HK}$
$\overline{HJ} \cong \overline{JK}$
$m\angle GJK = 100°$
Find $m\angle HGK$





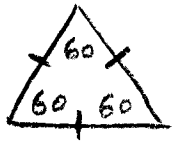
$\therefore$ Base $\angle$s in $\triangle HJK = \frac{80}{2} = 40°$

$m\angle GHK = 180 - 40 = 140°$

$\therefore$ Base $\angle$s in $\triangle GHK = \frac{40}{2} = \boxed{20° = m\angle HGK}$

RECALL: EQUILATERAL $\triangle$'S

$\Rightarrow 3 \cong \angle s = 60°$



Ch. 6-1 Proportions

RATIO A COMPARISON OF 2 NUMBERS BY DIVISION. $\Rightarrow$ A FRACTION.

PROPORTION AN EQUATION THAT SAYS 2 RATIOS ARE EQUAL.

$$\frac{a}{b} = \frac{c}{d}$$

(Pg 283) 2 CROSS-PRODUCTS WHICH ARE EQUAL

$$ad = bc$$

a, d called the EXTREMES

b, c called the MEANS

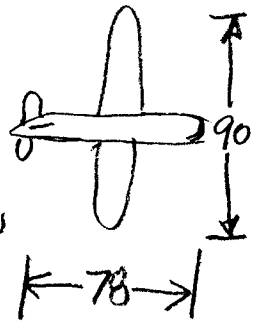
"The product of the means = the product of the extremes"

$\frac{a}{b}$ CAN BE WRITTEN $a : b$

Proportions ⇒ models, maps, blueprints,
sides of $\triangle^s$ in proportion,
sides of polygons in proportion.

Ex 4
Pg 284

Airplane ⇒ 78 m length
90 m wingspan



Model ⇒ wingspan = 36 cm
$\ell = ?$

ℓ → $\frac{78\text{ m}}{90\text{ m}} = \frac{\ell\text{ cm}}{36\text{ cm}}$ ← ℓ

wingspan → ← wingspan

$$\frac{90\ell}{90} = \frac{\overset{2}{\cancel{36}\overset{4}{}} \cdot 78}{\cancel{90}\,{}_{5}^{10}} = \frac{156}{5}$$

$$\ell = 31.2\text{ cm}$$

Homework: Pg 219 # 15, 16, 19, 20
Pg 286 # 28–30, 32, 34, 35.