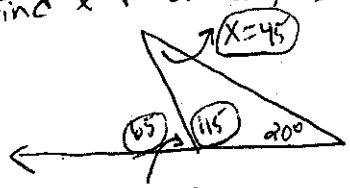
Geometry Unit 4 Review

Key

(1) Find x + all angles

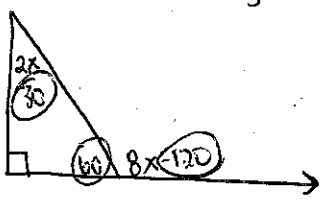


$2x-25 = x + 20$

$-x \quad +25 \quad -x \quad +25$

$x = 45$

(2) Find x + all angles



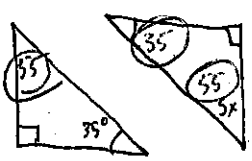
$90 + 2x = 8x$

$-2x \quad -2x$

$90 = 6x$

$x = 15$

(3a) Find x

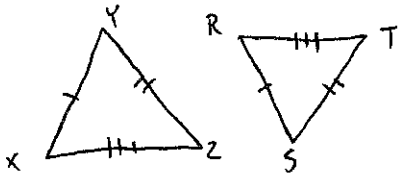


$55 = 5x$

$x = 11$

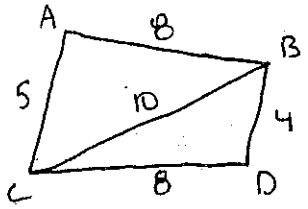
(4) Tell If True or False + why

$\triangle XYZ \cong \triangle RST$



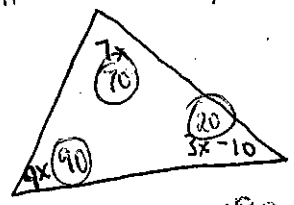
yes, SSS

$\triangle ABC \cong \triangle DCB$



NO, $\overline{AC} \cong \overline{DB}$

(3b) Find x + angles



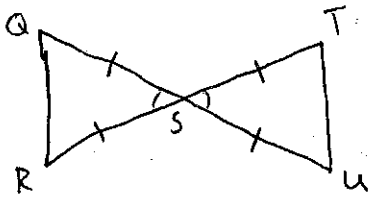
$7x + 9x + 3x - 10 = 180$

$19x - 10 = 180$

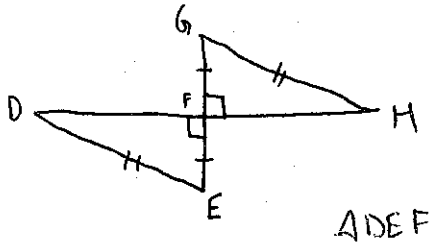
$19x = 190$

$x = 10$

(5) Give $\cong$ $\triangle$'s + why.



$\triangle QSR \cong \triangle TSU$, SAS



$\triangle DEF \cong \triangle HGF$, HL

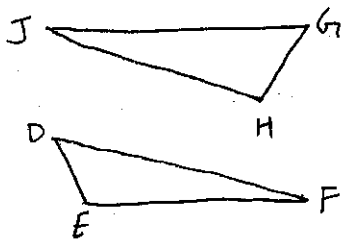
(6) Say what is missing:

For AAS: $\overline{DE} \cong \overline{GH}$, $\angle D \cong \angle G$, $\underline{\angle F \cong \angle J}$

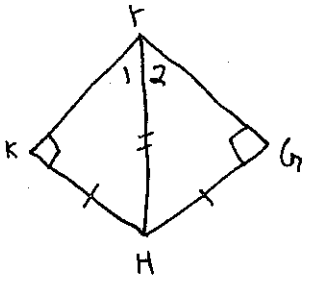
For ASA: $\overline{DF} \cong \overline{GJ}$, $\angle F \cong \angle J$, $\underline{\angle D \cong \angle G}$

For SAS: $\overline{JH} \cong \overline{FE}$, $\overline{HG} \cong \overline{ED}$, $\underline{\angle H \cong \angle E}$

For SSS: $\overline{DE} \cong \overline{GH}$, $\overline{EF} \cong \overline{HJ}$, $\underline{\overline{DF} \cong \overline{GJ}}$

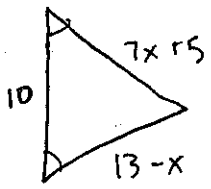


⑦ Prove $\angle 1 \cong \angle 2$



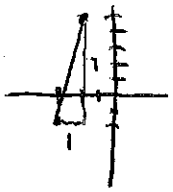
statements	Reasons
$\overline{KH} \cong \overline{GH}$	given
$\angle K$ & $\angle G$ right $\angle$s	
$\overline{FH} \cong \overline{FH}$	reflexive
$\triangle FGH$, $\triangle FKH$ right $\triangle$s	def of rt $\triangle$s
$\triangle FGH \cong \triangle FKH$	HL
$\angle 1 \cong \angle 2$	CPCTC

⑧ Find the value of x



$7x+5 = 13-x$
$+x \quad -5 \quad -5 \quad +x$
$8x = 8$
$x = 1$

⑨ Find the distance & midpoint: $(-2,5)$ & $(-3,-2)$

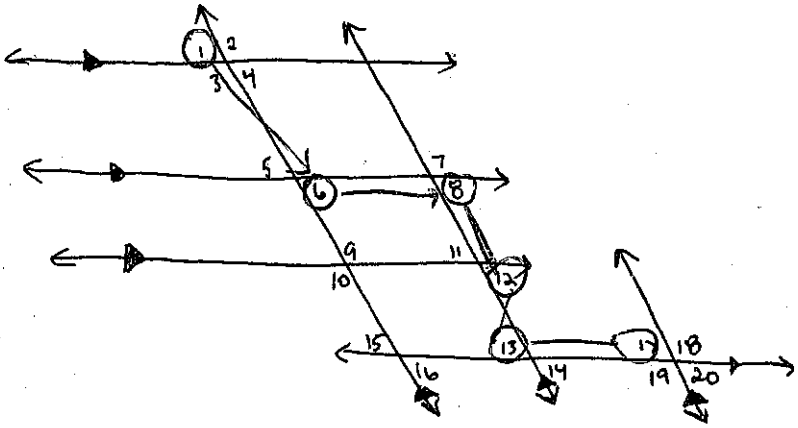


$7^2+1^2=c^2$
$49+1=c^2$
$50=c^2$
$c=\sqrt{50}$

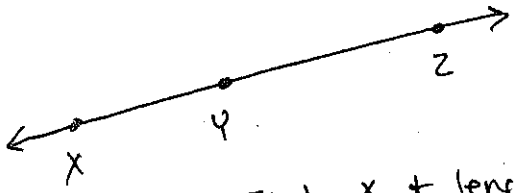
$\left(\frac{-2+-3}{2}, \frac{5+-2}{2}\right)$
$\left(-\frac{5}{2}, \frac{3}{2}\right)$

⑩ show: $\angle 1 \cong \angle 17$

$\angle 1 \cong \angle 6$ alt ext $\angle$s
$\angle 6 \cong \angle 8$ corresponding
$\angle 8 \cong \angle 12$ corresponding
$\angle 12 \cong \angle 13$ alt int $\angle$s
$\angle 13 \cong \angle 17$ corresponding
$\angle 1 \cong \angle 17$ transitive



⑪



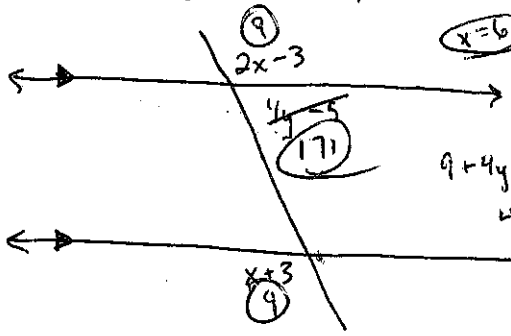
Find x & lengths

$\overline{XY} = 5$
$\overline{YZ} = x+3$ (21)
$\overline{XZ} = 2x-10$ (26)

$5 + x+3 = 2x-10$
$x+8 = 2x-10$
$-x \quad +10 \quad -x \quad +10$
$x = 18$

⑫ Find x & y

$2x-3 = x+3$
$-x \quad +3 \quad -x \quad +3$
$x = 6$

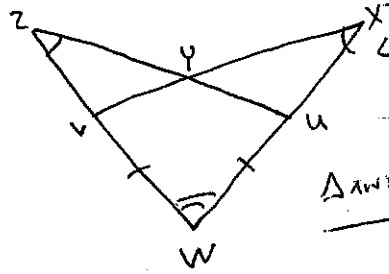


$9+4y-5=180$
$4y=176$
$y=44$

Practice Proofs.

Given: $\angle Z \cong \angle X$, $\overline{VW} \cong \overline{UW}$

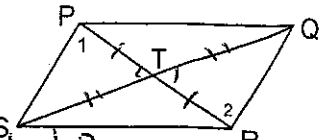
Prove: $\Delta XWV \cong \Delta ZWU$



Statements	Reasons
$\angle Z \cong \angle X$, $\overline{VW} \cong \overline{UW}$	given
$\angle ZWU \cong \angle XWV$	reflexive
$\Delta XWV \cong \Delta ZWU$	AAS

Given: T is a midpoint of $\overline{PR}$ and $\overline{SQ}$

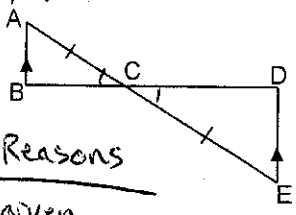
Prove: $\angle 1 \cong \angle 2$



Statements	Reasons
T is midpt $\overline{PR}$ + $\overline{SQ}$	given
$\overline{PT} \cong \overline{RT}$, $\overline{ST} \cong \overline{QT}$	def of midpt
$\angle PTS \cong \angle RTQ$	vert $\angle$s
$\Delta PTS \cong \Delta RTQ$	SAS
$\angle 1 \cong \angle 2$	CPCTC

Given: $\overline{AC} \cong \overline{EC}$, $\overline{AB} \parallel \overline{ED}$

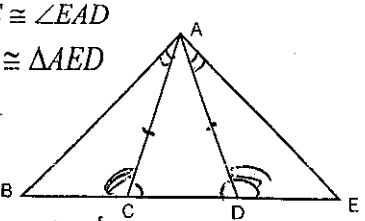
Prove: $\overline{BC} \cong \overline{DC}$



Statements	Reasons
$\overline{AC} \cong \overline{EC}$, $\overline{AB} \parallel \overline{ED}$	given
$\angle ACB \cong \angle ECD$	vertical $\angle$s
$\angle CAB \cong \angle CED$	alt Int $\angle$s
$\Delta CAB \cong \Delta CED$	ASA
$\overline{BC} \cong \overline{DC}$	CPCTC

Given: $\angle ACD \cong \angle ADC$, $\angle BAC \cong \angle EAD$

Prove: $\Delta ABC \cong \Delta AED$

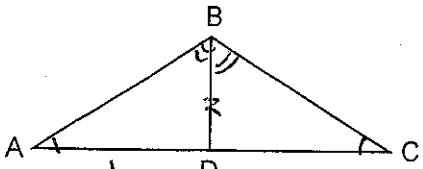


Statements	Reasons
$\angle ACD \cong \angle ADC$, $\angle BAC \cong \angle EAD$	given
$\overline{AC} \cong \overline{AD}$	base $\angle$ Thm
$\angle BCA + \angle ACD$ supplementary, $\angle EDA + \angle CDA$ supplementary	def of linear pair
$\angle BCA \cong \angle EDA$	$\cong$ supplement $\angle$ Thm
$\Delta ABC \cong \Delta AED$	ASA

Given: ΔABC is isosceles with base $\overline{AC}$

$\overline{BD}$ bisects $\angle B$

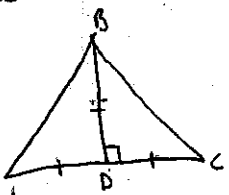
Prove: $\angle BDA \cong \angle BDC$



Statements	Reasons
ΔABC is Iso base $\overline{AC}$, $\overline{BD}$ bisects $\angle B$	given
$\angle A \cong \angle C$	base $\angle$ Thm
$\angle ABD \cong \angle CBD$	def of bisect
$\overline{BD} \cong \overline{BD}$	reflexive
$\Delta ABD \cong \Delta CBD$	AAS
$\angle BDA \cong \angle BDC$	CPCTC

Given: D is a midpoint of $\overline{AC}$

Prove: $\overline{AB} \cong \overline{CB}$



Statements	Reasons
$\overline{BD} \perp \overline{AC}$, D is midpt $\overline{AC}$	given
$\overline{AD} \cong \overline{CD}$	def of midpt
$\overline{BD} \cong \overline{BD}$	reflexive
$\angle BDC$ & $\angle BDA$ rt $\angle$s	def of $\perp$
$\angle BDC \cong \angle BDA$	rt $\angle \cong$ Thm
$\Delta BAD \cong \Delta BDC$	SAS
$\overline{AB} \cong \overline{CB}$	CPCTC