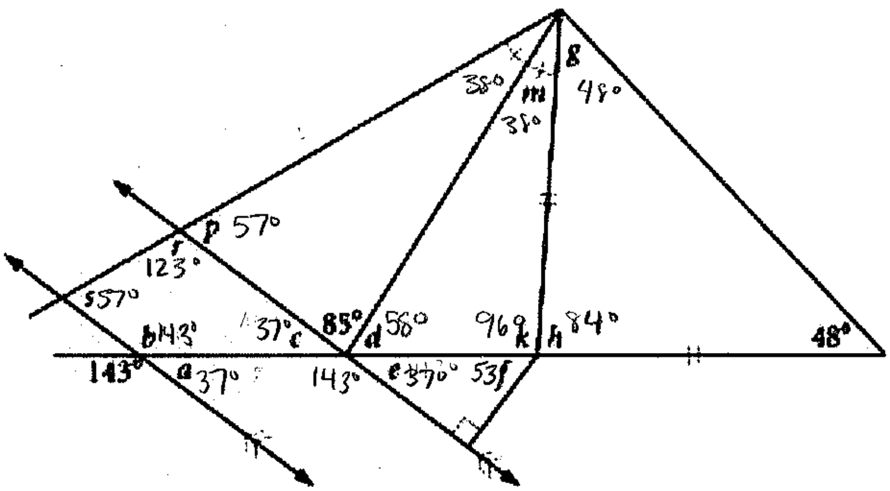
Name: Key Date:____________________

Geometry Band:______

ANGLE PUZZLE:

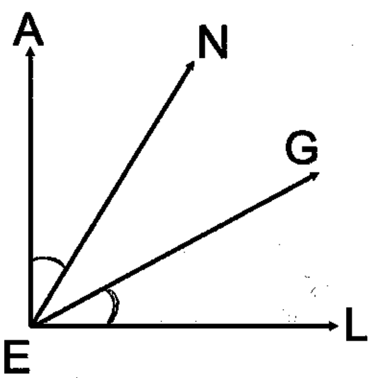
a = 37°
b = 143°
c = 37°
d = 58°
e = 37°
f = 53°

g = 48°
h = 84°
k = 96°
m = 38°
p = 57°
r = 123°
s = 57°



OVERLAPPING ANGLES PROOF:

Given: $\angle AEN \cong \angle LEG$
Prove: $\angle AEG \cong \angle LEN$



(1) $\angle AEN \cong \angle LEG$ → (2) $m\angle AEN = m\angle LEG$
Given | Def. of ≅

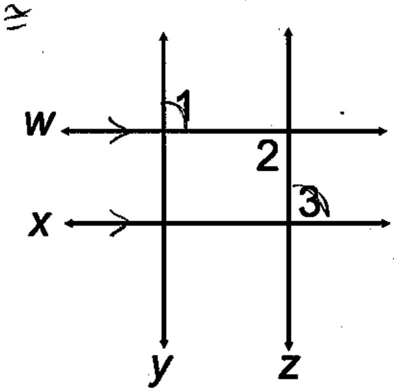
(3) $m\angle AEN + m\angle NEG = m\angle AEG$
$m\angle LEG + m\angle NEG = m\angle LEN$
Angle Addition Postulate

(4) $m\angle LEG + m\angle NEG = m\angle AEG$
Substitution Prop. of =

(5) $m\angle AEG = m\angle LEN$ → (6) $\angle AEG \cong \angle LEN$
Transitive Prop. of = | Def. of ≅

PARALLEL LINES PROOF:

Given: $w \parallel x, \angle 1 \cong \angle 3$
Prove: $y \parallel z$



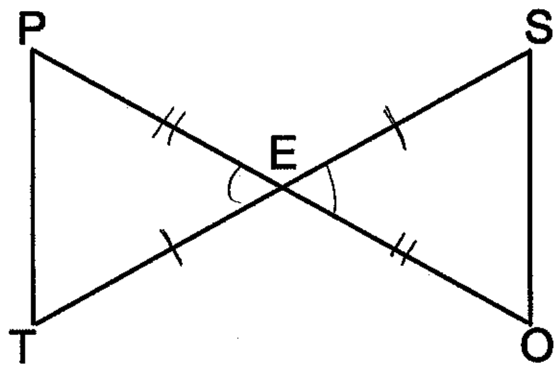
(1) $w \parallel x$, $\angle 1 \cong \angle 3$ → (2) $\angle 2 \cong \angle 3$
Given | Alt. Int. ∠ Thrm

(3) $\angle 1 \cong \angle 2$
Transitive Prop. of ≅

(4) $y \parallel z$
Converse of the Alt. Int. ∠ Thrm

BOWTIE PROOF:

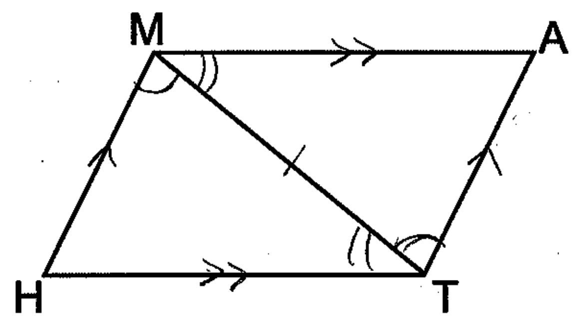
Given: $\overline{PO}$ bisects $\overline{ST}$ at E, E is the midpoint of $\overline{PO}$
Prove: $\Delta PET \cong \Delta OES$



1. $\overline{PO}$ bisects $\overline{ST}$ at E, E is midpt of $\overline{PO}$ — Given
2. $\overline{TE} \cong \overline{SE}$ — Def. of bisector
3. $\overline{PE} \cong \overline{OE}$ — Def. of midpt
4. $\angle PET \cong \angle OES$ — Vertical ∡ Thrm
5. $\Delta PET \cong \Delta OES$ — SAS

PARALLELOGRAM PROOF:

Given: $\overline{MH} \parallel \overline{AT}, \overline{MA} \parallel \overline{HT}$
Prove: $\angle H \cong \angle A$



1. $\overline{MH} \parallel \overline{AT}$, $\overline{MA} \parallel \overline{HT}$ — Given
2. $\angle HMT \cong \angle ATM$, $\angle AMT \cong \angle HTM$ — Alt. Int. ∡ Thrm
3. $\overline{MT} \cong \overline{TM}$ — Reflexive Prop. of $\cong$
4. $\Delta HMT \cong \Delta ATM$ — ASA
5. $\angle H \cong \angle A$ — CPCTC