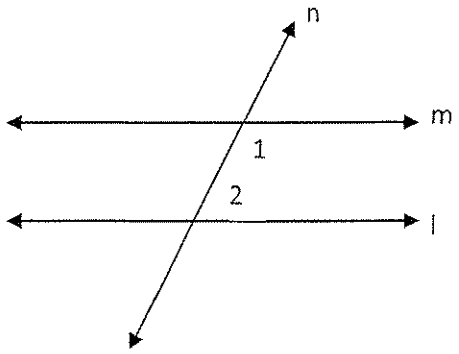
Worksheet 1.6

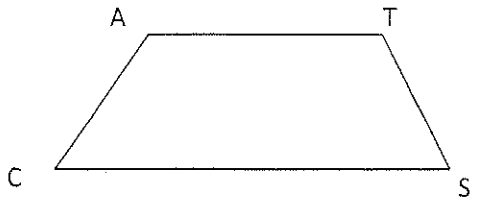
Name _____

1. Lines l and m are parallel. $m\angle 1 = 26 + 5x$ and $m\angle 2 = 34 + x$. Find the value of x, $m\angle 1$, and $m\angle 2$.



2. Given: $m\angle C = m\angle S$ and $\overline{AT} \parallel \overline{CS}$.
   Prove: $m\angle A = m\angle T$

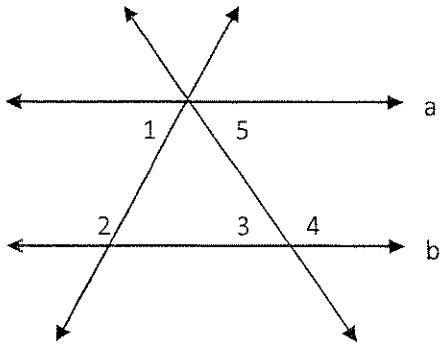
   Write a flow proof.



3. Given: $a \parallel b$ and $m\angle 1 = m\angle 3$

   Prove: $m\angle 2 = m\angle 4$

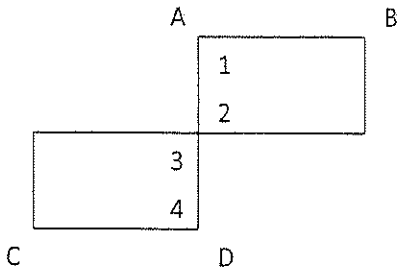
   Write a flow proof.



4. Given: $m\angle 1 = m\angle 2$ and $m\angle 3 = m\angle 4$

Prove: $\overline{AB} \parallel \overline{CD}$

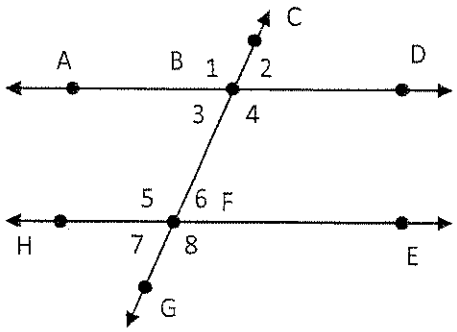
Write a flow proof.



5. Given: Lines $\overleftrightarrow{AD}$ and $\overleftrightarrow{HE}$ are cut by transversal $\overleftrightarrow{GC}$. Also, $m\angle 4 + m\angle 7 = 180^0$

Prove: $\overleftrightarrow{AD} \parallel \overleftrightarrow{HE}$

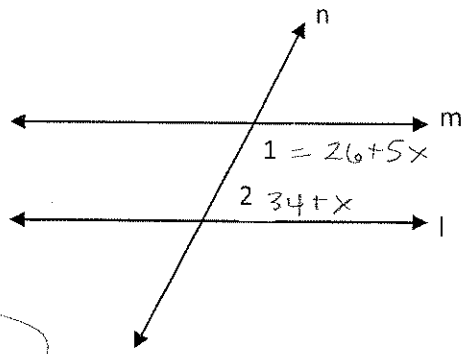
Write a flow proof.



Worksheet 1.6

Name Key

1. Lines l and m are parallel. $m\angle 1 = 26+5x$ and $m\angle 2 = 34+x$. Find the value of x, $m\angle 1$, and $m\angle 2$.



$26+5x+34+x=180°$

$60+6x=180°$

$6x=120$

$x=20$

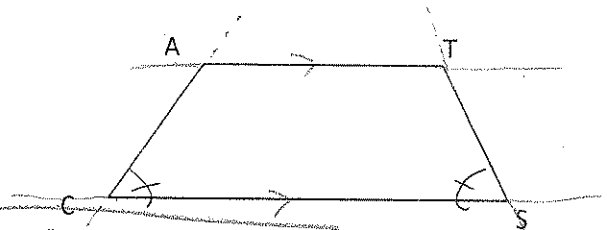
$m\angle 1 = 126°$

$m\angle 2 = 54$

2. Given: $m\angle C = m\angle S$ and $\overline{AT} \parallel \overline{CS}$.

Prove: $m\angle A = m\angle T$

Write a flow proof.



$m\angle C = m\angle S$ — Given

$\overline{AT} \parallel \overline{CS}$ — Given

$m\angle A + m\angle C = 180°$ — If ||, SS int. add to

$m\angle T + m\angle S = 180°$ — If ||, ss. int. sum to 180°

$m\angle A + m\angle C = m\angle T + m\angle S$ — Subst.

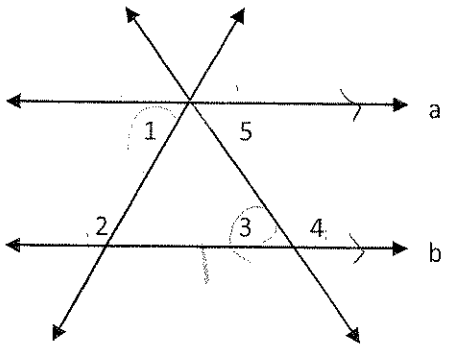
$m\angle A + m\angle S = m\angle T + m\angle S$ — Subst.

$m\angle A = m\angle T$ — Sub. prop. of =

3. Given: $a \parallel b$ and $m\angle 1 = m\angle 3$

Prove: $m\angle 2 = m\angle 4$

Write a flow proof.



$a \parallel b$ — Given

$m\angle 1 + m\angle 2 = 180°$ — If ||, SS int sum 180°

$m\angle 1 = m\angle 3$ — Given

$m\angle 1 + m\angle 4 = 180°$ — Subst.

$m\angle 3 + m\angle 4 = 180°$ — Linear Pair Post.

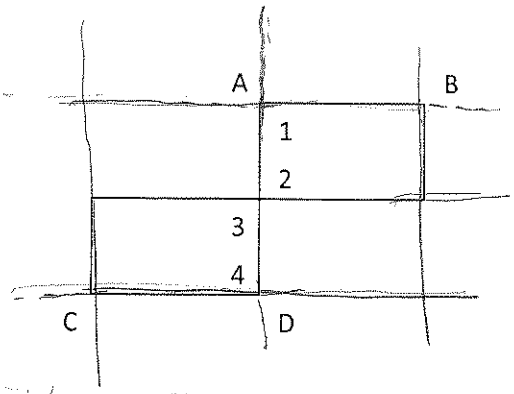
$m\angle 1 + m\angle 2 = m\angle 1 + m\angle 4$ — subst

$m\angle 2 = m\angle 4$ — Subtraction prop. of =

4. Given: $m\angle 1 = m\angle 2$ and $m\angle 3 = m\angle 4$

Prove: $\overline{AB} \parallel \overline{CD}$

Write a flow proof.



$m\angle 3 = m\angle 4$ — given

$m\angle 2 = m\angle 3$ — Vertical $\angle$s

$m\angle 1 = m\angle 3$ — Subst.

$m\angle 1 = m\angle 4$ — Sub

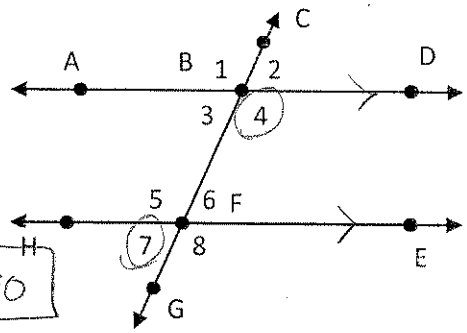
$m\angle 1 = m\angle 2$ — Given

$\overline{AB} \parallel \overline{CD}$ — If alt int angles =, then lines $\parallel$

5. Given: Lines $\overleftrightarrow{AD}$ and $\overleftrightarrow{HE}$ are cut by transversal $\overleftrightarrow{GC}$. Also, $m\angle 4 + m\angle 7 = 180^\circ$

Prove: $\overleftrightarrow{AD} \parallel \overleftrightarrow{HE}$

Write a flow proof.



$m\angle 4 + m\angle 7 = 180^\circ$ — Given

$m\angle 4 + m\angle 6 = 180$ — Subst

$m\angle 7 = m\angle 6$ — Vertical $\angle$s.

$\overleftrightarrow{AD} \parallel \overleftrightarrow{HE}$ — If SS int. Sum to 180, then $\parallel$.