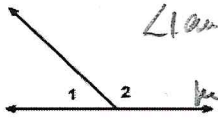
Given: $\angle 1$ and $\angle 2$ are supplementary

$m\angle 2 = 145°$

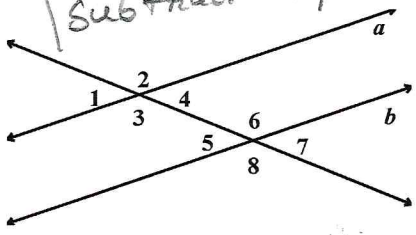
Prove: $m\angle 1 = 35°$



$\angle 1$ and $\angle 2$ are supplem.
$m\angle 2 = 145°$
$m\angle 1 + m\angle 2 = 180°$
$m\angle 1 + 145 = 180°$
$m\angle 1 = 35°$

given
given
def of supplem. angles
Substitution
Subtraction prop.

Unit 2 – Properties of Parallel and Perpendicular Lines



Use the following diagram for questions 9 – 21. $a \parallel b$.

10. Name all the pairs of vertical angles.
$\angle 3$ and $\angle 2$, $\angle 1$ and $\angle 4$, $\angle 6$ and $\angle 8$, $\angle 5$ and $\angle 7$

11. Name all the pairs of same-side interior angles.
$\angle 3$ and $\angle 5$, $\angle 4$ and $\angle 6$

12. Name all the alternate interior angles.
$\angle 4$ and $\angle 5$, $\angle 3$ and $\angle 6$

13. Name all the corresponding angles.
$\angle 1$ and $\angle 5$, $\angle 3$ and $\angle 8$, $\angle 2$ and $\angle 6$, $\angle 4$ and $\angle 7$

14. Name all same-side exterior angles.
$\angle 1$ and $\angle 8$, $\angle 2$ and $\angle 7$

15. Name all alternate exterior angles.
$\angle 1$ and $\angle 7$, $\angle 2$ and $\angle 8$

16. Name 4 linear pairs.
$\angle 1$ and $\angle 3$, $\angle 3$ and $\angle 4$, $\angle 5$ and $\angle 6$, $\angle 5$ and $\angle 8$

17. Which of the above types of angles are congruent? Which of the above type are supplementary?
AI, AE, Corresponding, VA are congruent, SSI, SSE, linear pair are supplem.

18. Complete the following proof:

Given: $a \parallel b$

Prove: $m\angle 1 + m\angle 8 = 180°$

Statements	Justifications
1. $a \parallel b$	1. given
2. $m\angle 5 + m\angle 8 = 180°$	2. Linear pair $\angle$s are supplem.
3. $\angle 5 \cong \angle 1$	3. Corresponding angles of parallel lines are congruent
4. $m\angle 1 + m\angle 8 = 180°$	4. substitution

19. Complete the following proof:

Given: $a \parallel b$

Prove: $m\angle 3 \cong m\angle 6$

Statements	Justifications
$a \parallel b$ $\angle 3 \cong \angle 8$ $\angle 8 \cong \angle 6$ $\angle 3 \cong \angle 6$	given corresp. $\angle$'s are $\cong$ when $a \parallel b$ V.A are always $\cong$ transitive prop.

20. If $m < 1 = 7x - 20$ and $m < 5 = 3x + 8$, solve for x and find $m < 1$ and $m < 5$.

$m\angle 1 = m\angle 5$ corresponding

$7x - 20 = 3x + 8$

$x = 7$, $m\angle 1 = 29°$, $m\angle 5 = 29°$