Name: Key Date: _____ Class: ____

Parallel Lines and Special Angles

$a \parallel b$ and p is a transversal. Fill in the blanks describing the angle relationships with regard $\angle 3$. Then, next to each label them as congruent (C) or supplementary (S)

$\angle 3$ and $\angle$ 4 are a linear pair — make a straight line

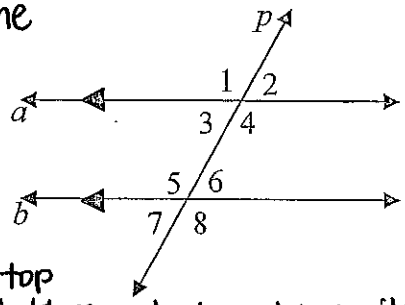
$\angle 3$ and $\angle$ 1 are a linear pair

$\angle 3$ and $\angle$ 2 are vertical angles — across from each other at the same vertex.

$\angle 3$ and $\angle$ 7 are corresponding angles — imagine "sliding" the top intersection to the bottom; what matches with $\angle 3$?

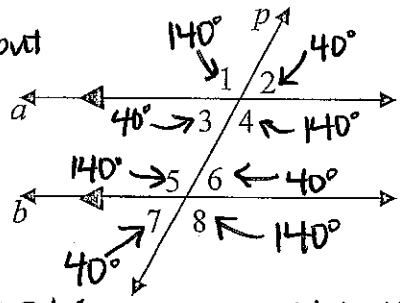
$\angle 3$ and $\angle$ 6 are alternate interior angles — opposite sides of transversal and parallel lines, but inside the parallel lines

$\angle 3$ and $\angle$ 5 are same side interior angles — inside the parallel lines, but on the same side of the transversal.



$a \parallel b$ and p is a transversal. If $m\angle 1 = 140°$, find the measure of each angle giving one reason for each answer.

$180 - 140 = 40$ $\quad 40 + 140 = 180$



$m\angle 2 =$ 40° because $\angle 1$ and $\angle 2$ are supplementary (they must add to 180°)

$m\angle 3 =$ 40° because $\angle 2$ and $\angle 3$ are vertical (so they're congruent).

$m\angle 4 =$ 140° because $\angle 1$ and $\angle 4$ are vertical (so they're congruent).

$m\angle 5 =$ 140° because $\angle 1$ and $\angle 5$ are corresponding (so they're congruent).

$m\angle 6 =$ 40° because $\angle 2$ and $\angle 6$ are corresponding (so they're congruent).

$m\angle 7 =$ 40° because $\angle 6$ and $\angle 7$ are vertical (so they're congruent).

$m\angle 8 =$ 140° because $\angle 5$ and $\angle 8$ are vertical (so they're congruent).