Geometry 1.2
Class-Notes

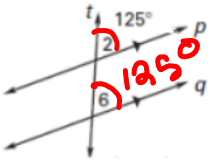
Name_____
Date_____Period_____

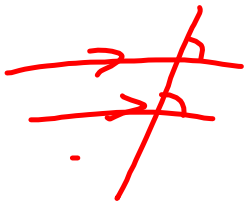
3.2 Use parallel Lines and Transversals

The following four postulates apply to **PARALLEL LINES** cut by a **TRANSVERSAL.**

I. Corresponding angles postulate: If two lines are parallel **and cut by a** transversal**, then** corresponding **angles are** congruent.

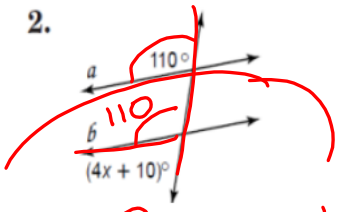
1. Find the m∠6





Find x so that $a \parallel b$.

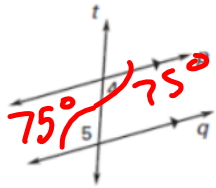
2.

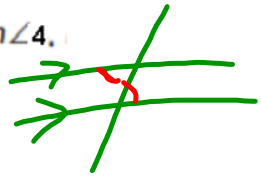


$4x+10+110=180$
$4x+120=180$
$4x=60$
$x=15$

II. Alternate Interior angles postulate: If two lines are parallel **and cut by a** transversal**, then** alternate interior **angles are** congruent.

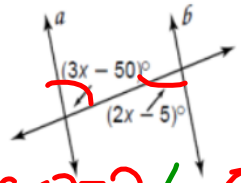
1. If $m\angle 5 = 75°$, find $m\angle 4$.





Find x so that $a \parallel b$.

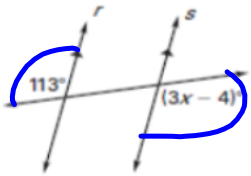
2.



$3x-50=2x-5$
$-2x \quad -2x$
$x-50=-5$
$+50 \quad +50$
$x=45$

III. Alternate Exterior angles postulate: If two lines are parallel and cut by a transversal, then alternate exterior angles are congruent.

1. Find the value of x.

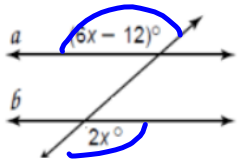


$113 = 3x - 4$

$117 = 3x$

$39 = x$

2. Find x so that $a \parallel b$.



$2x = 6x - 12$

$-6x \quad -6x$

$-4x = -12$

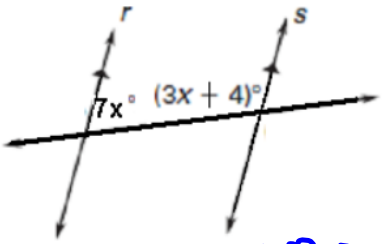
$x = 3$

same side interior

IV. Consecutive interior angles postulate: If two lines are parallel and cut by a transversal, then same side interior/(consecutive interior) angles are supplementary.

180°

1. Find the value of x.



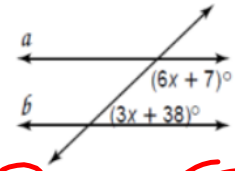
$7x + 3x + 4 = 180$

$10x + 4 = 180$

$\frac{10x}{10} = \frac{176}{10}$

$x = 17.6$

2. Find x so that $a \parallel b$.



$6x + 7 + 3x + 38 = 180$

$9x = 135$

$x = 15$