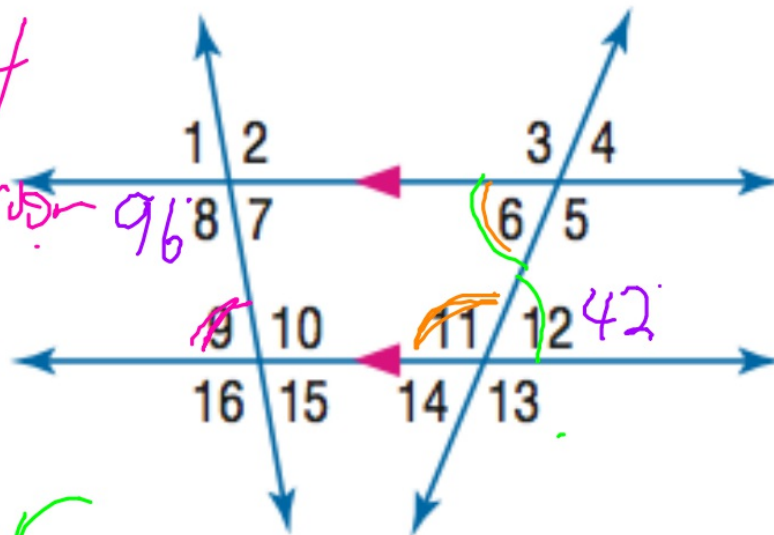# Geometry BELL WORK

In the figure, $m\angle 8 = 96$ and $m\angle 12 = 42$. Find the measure of each angle. Tell which postulate(s) or theorem(s) you used.

8. $\angle 9$ $180 - 96 = 84$
                      consec. interior

9. $\angle 11$ $180 - 42 = 138°$
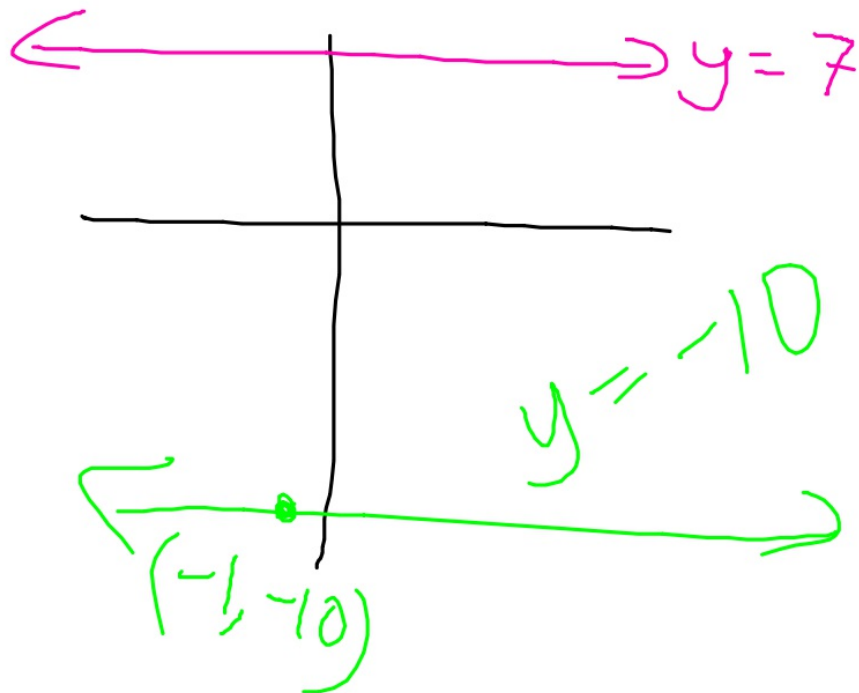   linear pair

10. $\angle 6$

$42°$ alt interior

Due Today:

3.4 pg 200-201 # 19-21, 37-40

$y = 0x + 7$

(38) $(-1, -10)$ $\parallel$ to $y = 7$

$m = 0$

$y = 7$

$y = -10$

$(-1, -10)$

$y - (-10) = 0(x - (-1))$

$y + 10 = 0$
$ -10 -10$

$y = -10$

$(6, 2)$ $\parallel$ to $y = -\frac{2}{3}x + 1$

$x_1 \; y_1$

$m = -\frac{2}{3}$ $m = \frac{-2}{3}$

$y - 2 = -\frac{2}{3}(x - 6)$ point-slope form

$y - 2 = -\frac{2}{3}x + 4$
$+2 \qquad\qquad +2$

$y = -\frac{2}{3}x + 6$ slope-intercept form

3-5 Proving Lines Parallel

We have looked at angle pair relationships and examined the slopes of parallel and perpendicular lines.

Today we will:
* Recognize angle pairs that occur with parallel lines.
* Prove that two lines are parallel.

The CONVERSE Theorems and Postulates:

If corresponding angles are _Congruent_,
then the lines are parallel.

If alternate exterior angles are _Congruent_,
then the lines are parallel.

If alternate interior angles are _Congruent_,
then the lines are parallel.

If consecutive interior angles are
Supplementary, then the lines are parallel.

Given the following information, is it possible to prove that any of the lines shown are parallel? If so, state the postulate or theorem that justifies your answer.
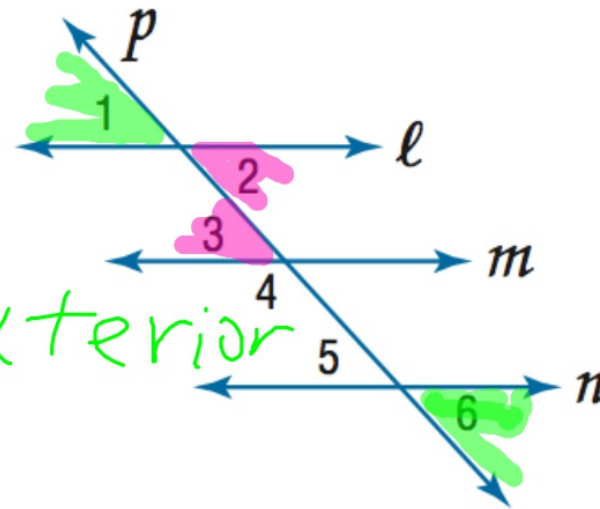
a. $\angle 1 \cong \angle 6$

$\ell \parallel n$

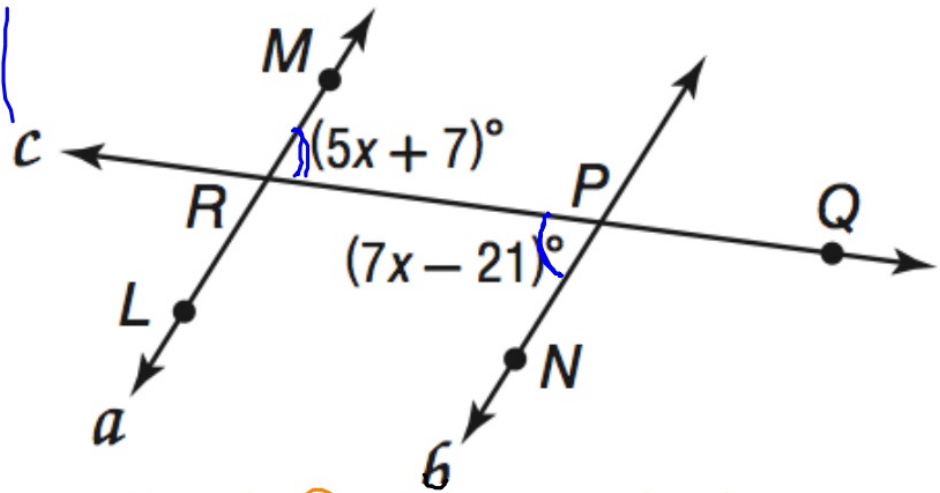converse of alt. exterior

b. $\angle 2 \cong \angle 3$

$\ell \parallel m$

converse of alt interior

(Diagram: transversal p crossing lines ℓ, m, n with angles 1, 2, 3, 4, 5, 6)

OPEN ENDED Find $m\angle MRQ$ so that $a \parallel b$.
Show your work.

$$5x + 7 = 7x - 21$$
$$\underline{-5x \qquad\qquad -5x}$$
$$7 = 2x - 21$$
$$\underline{+21 \qquad\qquad +21}$$
$$\frac{28}{2} = \frac{2x}{2}$$
$$14 = x$$

M

$c \leftarrow$ $(5x + 7)°$

R

P

Q

$(7x - 21)°$

L

a

N

b

$m\angle MRQ = 5(14) + 7$

$70 + 7$

$m\angle MRQ = 77$

Assignment: worksheet 3.4-3.5