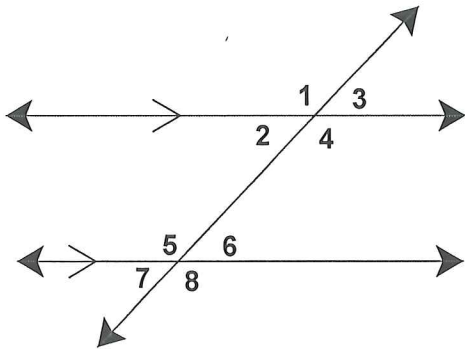Name: _____Key_____   Hour: _____

Parallels Cut by a Transversal Day 2 Notes Warm-Up

Directions: Decide whether each statement is true or false using the figure below.

1. $\angle 1 \cong \angle 3$ **False** $\angle 1 + \angle 3 = 180$ **linear pairs are suppl.**

2. $\angle 8 \cong \angle 3$ **False** $\angle 8 \cong \angle 1$ **// lines form ≅ alt. ext. ∠s.**
   $\angle 3 \cong \angle 7$

3. $\angle 2$ and $\angle 6$ are supplementary. $\angle 2 \cong \angle 6$ **// lines form ≅ alt. int ∠s.**

4. $\angle 7$ and $\angle 8$ are supplementary.
   TRUE

5. $m\angle 1 \neq m\angle 6$ **TRUE**

6. $m\angle 5 = m\angle 4$ **TRUE**

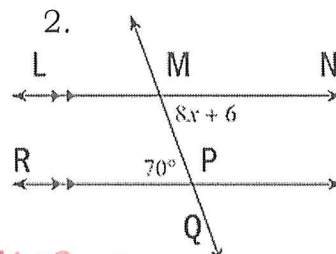7. Find x using the triangle sum theorem then add Triangle Sum to your justification bank.
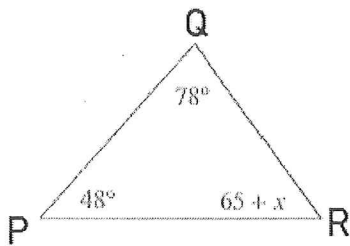
$\angle P + \angle Q + \angle R = 180°$ **Triangle Sum theorem**
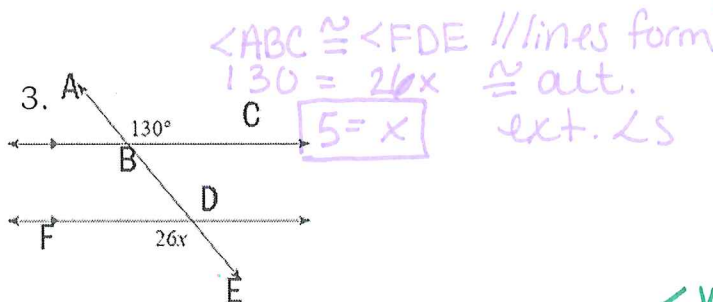$48 + 78 + 65 + x = 180°$
$191 + x = 180$
$\boxed{x = -11}$

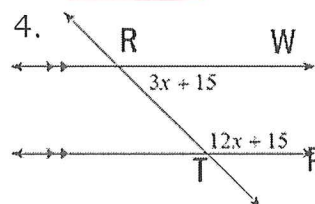Notes & Examples: Find the value of the variable, show your geometry, and justify your set up!
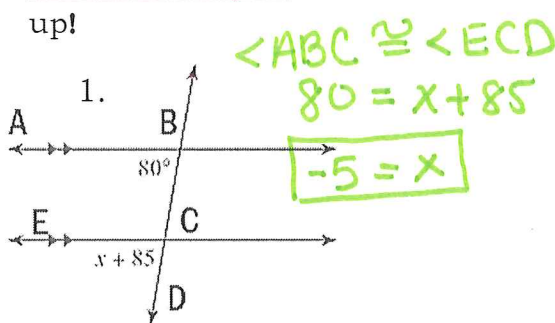
1.
$\angle ABC \cong \angle ECD$ **// lines form ≅ corr. angles**
$80 = x + 85$
$\boxed{-5 = x}$

2.
$\angle NMP \cong \angle RPM$ **// lines form ≅ alt. int ∠s**
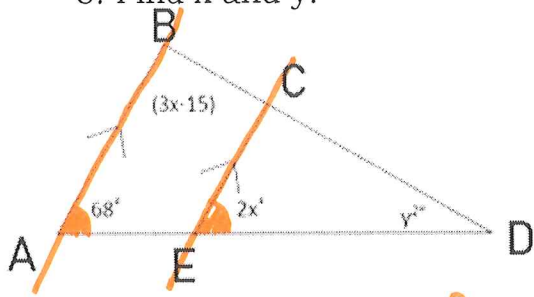$8x + 6 = 70$
$\boxed{x = 8}$

3.
$\angle ABC \cong \angle FDE$ **// lines form ≅ alt. ext. ∠s**
$130 = 26x$
$\boxed{5 = x}$

4.
$\angle WRT + \angle RTP = 180°$ **// lines form Suppl. con. int ∠s**
$3x + 15 + 12x + 15 = 180$
$\boxed{x = 10}$

Directions: Show your geometry and justifications

5. Find x and y.

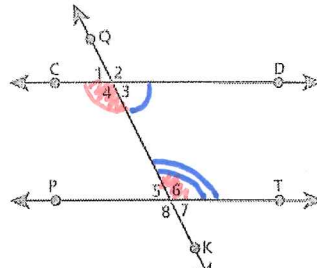$\angle A \cong \angle CED$ **|| lines form $\cong$ corr. $\angle$s**

$68 = 2x$

$\boxed{34 = x}$

$\triangle$ sum thm

$\angle A + \angle B + \angle D = 180°$

$68 + 3(34) - 15 + y^2 = 180°$

$155 + y^2 = 180°$

$y^2 = 25 \quad \boxed{y = \pm 5}$

check $\angle D$
$y^2 = 5^2 = 25 \checkmark$
$y^2 = (-5)^2 = 25 \checkmark$

6. If CD || PT, $m < 3 = (8y + 2)°$, $m < 6 = (25y - 20)°$ and $m < 4 = (10x)°$, find x, y and $m < 6$.

$\sim$ Parallel

$\angle 3 + \angle 6 = 180°$ **|| lines form Suppl. con. int. angles**

$8y + 2 + 25y - 20 = 180$

$\boxed{y = 6}$

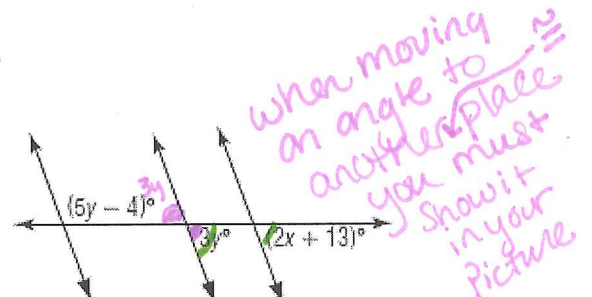$\angle 4 \cong \angle 6$ **|| lines form $\cong$ alt. int $\angle$s.**

$10x = 25(6) - 20$

$\boxed{x = 13}$

Directions: Justify when there is no geometry available.

7.
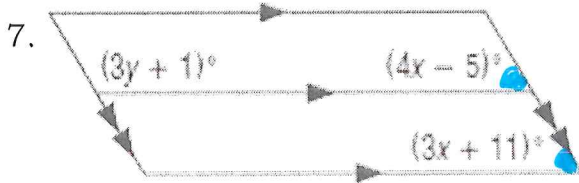
$4x - 5 = 3x + 11$ **|| lines form $\cong$ Corr. $\angle$s**

$\boxed{x = 16}$

$4(16) - 5 + 3y + 1 = 180°$ **|| lines form suppl. con. int $\angle$s**

$\boxed{y = 40}$

8.

when moving an angle to another place you must show it in your picture

$5y - 4 + 3y = 180°$ ← **|| lines form suppl. con. int $\angle$s**

$8y - 4 = 180$

$\boxed{y = 23}$

$3(23) = 2x + 13$ **|| lines form $\cong$ corr. $\angle$s.**

$\boxed{28 = x}$

9. Without geometry or justifying, find x. You may draw more parallel lines or triangles.

$\angle 1 = 36 + 31$

$\boxed{\angle 1 = 67°}$

by $\triangle$ sum

$113°$
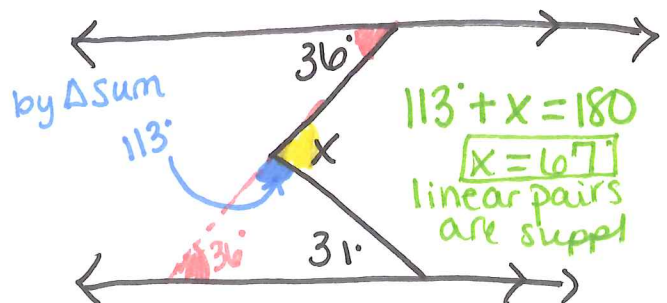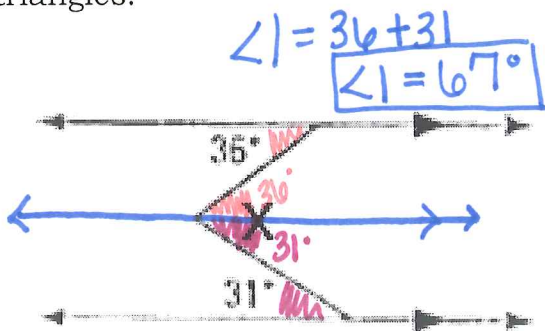
$113° + x = 180$

$\boxed{x = 67°}$

linear pairs are suppl