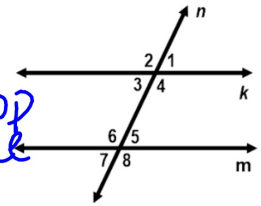
1. Alternate Exterior Angles Proof: *Complete the proof by filling in the missing reasons*

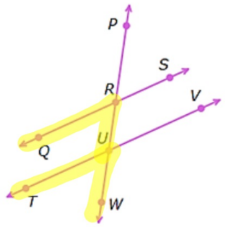
Given: line m || line k **Prove**: ∠2 ≅ ∠8

Statements	Reasons
1. line m || line k	1. Given
2. ∠2 ≅ ∠6	2. corresp ∠s
3. ∠6 ≅ ∠8	3. vert ∠s
4. ∠2 ≅ ∠8	4. transitive prop of congruence



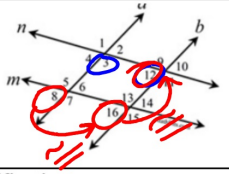
2. **Given:** $\overleftrightarrow{QS} \parallel \overleftrightarrow{TV}$ **Prove:** $m\angle PRQ + m\angle TUW = 180°$

Statements	Justifications
$\overleftrightarrow{QS} \parallel \overleftrightarrow{TV}$	Given
$\angle TUW \cong \angle QRU$	corresp. ∠s
$m\angle PRQ + m\angle QRU = 180°$	Linear pair
$m\angle PRQ + m\angle TUW = 180°$	substitution



3. Given: $m \parallel n$ and $a \parallel b$

Prove: $\angle 3 \cong \angle 13$



∠8 ≅ ∠16
∠16 ≅ ∠12
∠8 ≅ ∠12

Statements	Justifications
$m \parallel n$ and $a \parallel b$	Given
$m\angle 3 + m\angle 12 = 180°$	SSI
$m\angle 12 + m\angle 13 = 180°$	SSI
$m\angle 3 + m\angle 12 = m\angle 12 + m\angle 13$	~~Transitive Property~~ subst
$m\angle 3 \cong m\angle 13$	Subtraction Property
$\angle 3 \cong \angle 13$	Definition of Congruence

= 80°

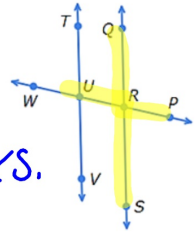
4. In the diagram for #3, $m\angle 8 = 10x + 10$ and $m\angle 12 = 12x - 4$, what is $m\angle 16$?

$10x + 10 = 12x - 4$
$10 = 2x - 4$
$14 = 2x$
$x = 7$

5. **Given:** $\angle SRU \cong \angle RUT$ **Prove:** $\overleftrightarrow{QS} \parallel \overleftrightarrow{TV}$

Statements	Justifications
$\angle SRU \cong \angle RUT$	Given
$\angle PRQ \cong \angle SRU$	vert ∠s
$\angle RUT \cong \angle PRQ$	Transitive PROP
$\overleftrightarrow{QS} \parallel \overleftrightarrow{TV}$	converse of corresp ∠s.

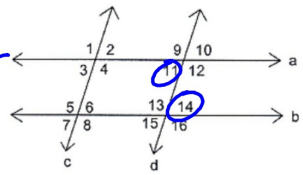
Corresp ∠s.



a = b
b = c
a = c

6. **Given:** $a \parallel b$ **Prove:** $\angle 9$ and $\angle 14$ are supplementary

Statements	Justifications
$a \parallel b$	Given
$m\angle 9 + m\angle 11 = 180°$	Linear pair
$\angle 11 \cong \angle 14$	Alternate Interior Angles
$m\angle 9 + m\angle 14 = 180°$	substitution
$\angle 9$ & $\angle 14$ are suppl	def of suppl.



supplements $\angle$ thm

15. **REINFORCE** Write an equation for each line described below.

a. A line parallel to the line $y = 4x - 3$ that passes through the point (3,13)

$y = mx + b$

$m = 4$

$13 = 4(3) + b$

$13 = 12 + b$

$b = 1$

$y = 4x + 1$

b. A line perpendicular to the line $y = \frac{1}{2}x + 5$ with y-intercept -2

$m = -2$

$y = -2x - 2$

c. A line parallel to the line $3x + 4y + 8 = 0$ with y-intercept 4

$3x + 4y = -8$ $Ax + By = C$

$-3x \quad -3x$

$4y = -3x - 8$

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

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

d. A line perpendicular to the line $2x - 5y = 15$ that passes through the point (10,1)

$-5y = -2x + 15$

$y = \frac{2}{5}x - 3$

$m = \frac{-5}{2}$

$y = \frac{-5}{2}x + 26$

$1 = \frac{-5}{2}(10) + b$

$1 = -25 + b$

$b = 26$

Practice Test:

- Grab a Chromebook and log in.
- Go to Agile Mind.
- Click on "Cwk #14: Practice Test."
- Complete & turn in a paper copy.

Hwk #23 - Practice Review Packet (Topic 6)