Geo A Unit 2 Review Puzzle Solutions

SA ① $\angle 1$ and $\angle 5$

NT ② $\angle 2$ and $\angle 4$

NG ③ Skew

IT ④ $m\angle 1 = m\angle 7$ (alternate exterior angles)

$16x + 32 = 9x + 68$

$6x + 32 = 68$

$6x = 36$

$\boxed{x = 6}$

GH ⑤ $m\angle 3 + m\angle 2 = 180$ (Linear pair)

$3x + 2x = 180$

$5x = 180$

$\boxed{x = 36}$

$m\angle 2 = m\angle 6$ (corresponding angles)

$2x = y$

$2(36) = y$

$\boxed{y = 72}$

MO ⑥ Since $72 + 108 = 180°$, the angles are supplementary, so all b
by the consecutive interior angles converse.

WA ⑦ Since $4x°$ and $x + 5y°$ are not an angle pair, we want to move one of the angles. We can move the $4x°$ in the spot next to the $x + 5y°$ to make a linear pair

$4x + x + 5y = 180$

$5x + 5y = 180$

$5(16) + 5y = 180$

$80 + 5y = 180$

$5y = 100$

$\boxed{y = 20}$

ME (8) $m=-3$ thru $(-2,7)$

$y=mx+b$

$7=-3(-2)+b$

$7=6+b$

$b=1$

$\boxed{y=-3x+1}$

SI (9) Line a: $\frac{-2-6}{7+5}=\frac{-8}{12}=-\frac{2}{3}$

Line b: $\frac{-4+2}{-9+12}=\frac{-2}{3}$

> Parallel

TI (10) slope of $\overleftrightarrow{OB}=\frac{-6+1}{3-4}=\frac{-5}{-1}=5$

$\perp$ slope $=-\frac{1}{5}$ thru $(5,-2)$

$y=mx+b$

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

$-2=-1+b$

$-1=b$

$\boxed{y=-\frac{1}{5}x-1}$

NX (11) Line j: $y+6x=2$ ← solve for y to get in slope-int. form

$y=-6x+2 \Rightarrow m=-6$

Line k: $6y-x=12$ ← solve for y

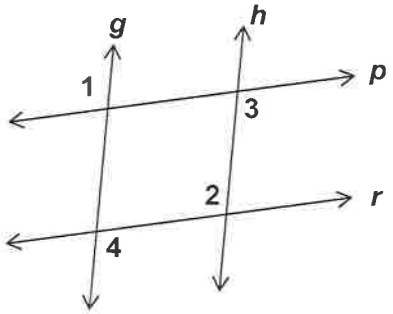
$\frac{6y}{6}=\frac{x}{6}+\frac{12}{6}$

$y=\frac{1}{6}x+2 \Rightarrow m=\frac{1}{6}$

> Perpendicular

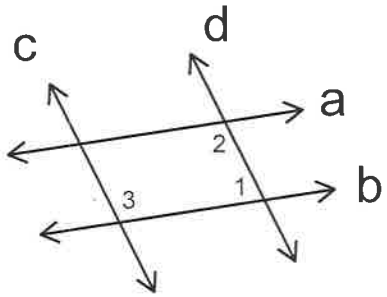
Proof Practice

1) **Given:** $\angle 1 \cong \angle 3$
Prove: $\angle 2 \cong \angle 4$



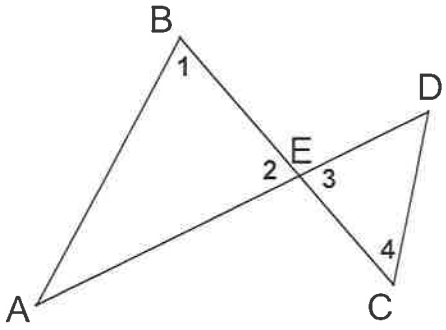
Statements	Reasons
1. $\angle 1 \cong \angle 3$	1. Given
2. $g \parallel h$	2. Alt. Ext Angles Converse
3. $\angle 2 \cong \angle 4$	3. Alt. Int. Angles Theorem

2) **Given:** $a \parallel b$ and $\angle 2 \cong \angle 3$
Prove: $c \parallel d$



Statements	Reasons
1. $a \parallel b$	1. Given
2. $\angle 1$ and $\angle 2$ are supplementary	2. Consecutive Interior Angles Theorem
3. $\angle 2 \cong \angle 3$	3. Given
4. $\angle 1$ and $\angle 3$ are supplementary	4. Substitution Property
5. $c \parallel d$	5. Consecutive Interior Angles Converse

3) **Given :** $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$
Prove: $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$



Statements	Reasons
1. $\angle 1 \cong \angle 2$	1. Given
2. $\angle 2 \cong \angle 3$	2. Vertical Angles Theorem
3. $\angle 3 \cong \angle 4$	3. Given
4. $\angle 1 \cong \angle 4$	4. Transitive Property
5. $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$	5. Alternate Interior Angles Converse