NAME: Key DATE: _____ BLOCK/PERIOD: _____

Line & Angle Theorems

Independent Practice + Homework

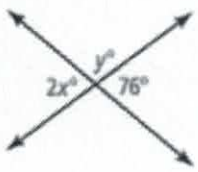
Developing Proof Complete the following proof by filling in the blanks.

Given: $\angle 1 \cong \angle 3$

Prove: $\angle 6 \cong \angle 4$

Statements	Reasons
1) $\angle 1 \cong \angle 3$	1) Given
2) $\angle 3 \cong \angle 6$	2) a. ? Vertical ∠'s
$\angle 1 \cong \angle 6$ 3) b. ?	3) Transitive Property of Congruence
4) $\angle 1 \cong \angle 4$	4) c. ? Vertical ∠'s
5) $\angle 6 \cong \angle 4$	5) d. ? Transitive Prop. of ≅.

6.)



x = 38

Y = 104°

$2x = 76$

$\frac{2x}{2} = \frac{76}{2}$

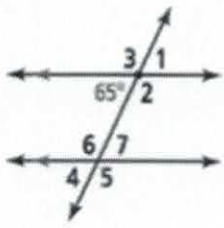
$x = 38$

$360 - 76 - 76 = 208$

$208 \div 2 = 104°$

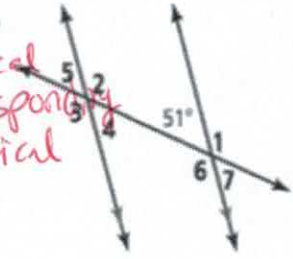
Identify all the numbered angles that are congruent to the given angle. Justify your answers.

7.



Angles

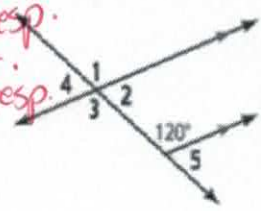
8.



1 Vertical
7 corresponding
4 Vertical

Angles

9.



5 corresp.
4 vert.
7 corresp.

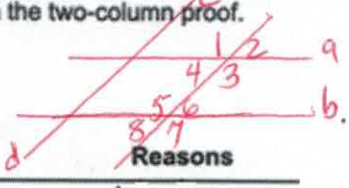
Angles

1 corresp.
3 vertical.

10. **Developing Proof** Supply the missing reasons in the two-column proof.

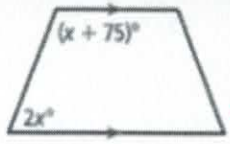
Given: $a \parallel b$, $c \parallel d$

Prove: $\angle 1 \cong \angle 3$



Statements	Reasons
1) $a \parallel b$	1) Given
2) $\angle 3$ and $\angle 2$ are supplementary.	2) a. ? linear pair
3) $c \parallel d$	3) Given
4) $\angle 1$ and $\angle 2$ are supplementary.	4) b. ? linear pair
5) $\angle 1 \cong \angle 3$	5) c. ? substitution prop.

11. **Error Analysis** Which solution for the value of x in the figure shown is incorrect? Explain.



A.

$2x = x + 75$

$x = 75$

B.

$2x + (x + 75) = 180$

$3x + 75 = 180$

$3x = 105$

$x = 35$

A is incorrect. There is an error understanding the property of a quadrilateral, trapezoid. The two angles are not congruent.