

Notes

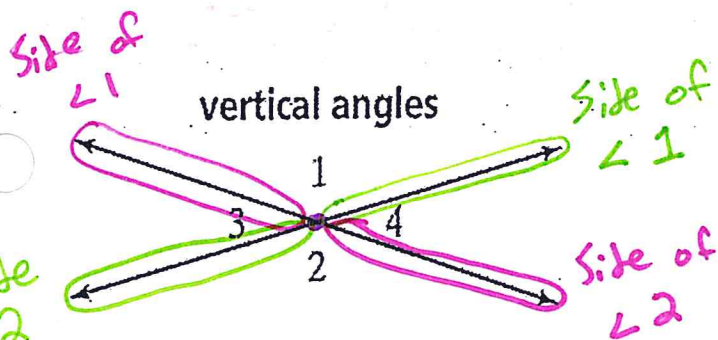
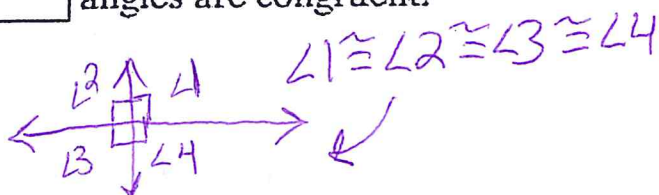
Vertical angles are congruent.

$$\angle 1 \cong \angle 2 \text{ and } \angle 3 \cong \angle 4$$

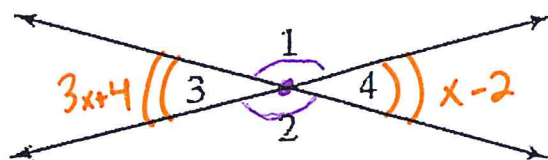
↑
congruent

Theorem 2-4

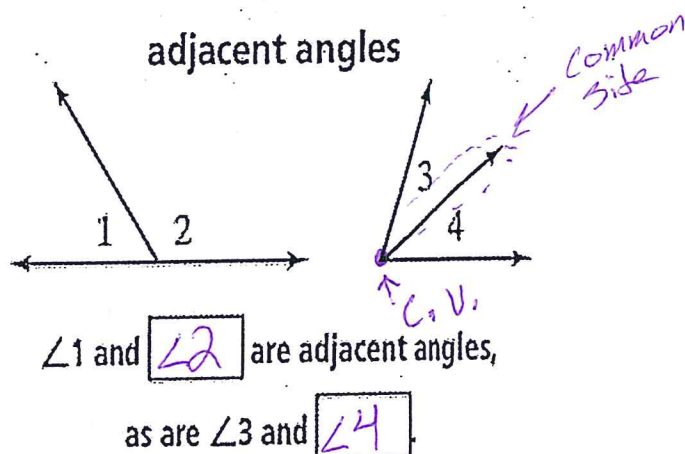
All right angles are congruent.



$\angle 1$ and $\angle 2$ are vertical angles,
as are $\angle 3$ and $\angle 4$.



Ex: - If $m\angle 1 = 150^\circ$, then $m\angle 2 = 150^\circ$
- If $m\angle 4 = x-2$ and $m\angle 3 = 3x+4$,
then $3x+4 = x-2$.
($\angle 3 = \angle 4$)



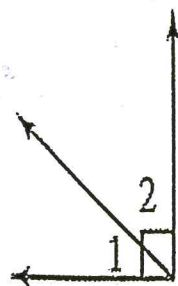
$\angle 1$ and $\angle 2$ are adjacent angles,
as are $\angle 3$ and $\angle 4$.

Vertical angles are 2 angles
whose sides are opposite
rays.

"Across from each other,
on the same vertex."

Adjacent angles are angles
with a common side and
a common vertex.
"Next to each other."

90°
complementary angles



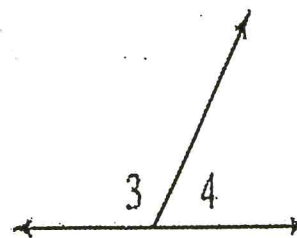
$\angle 1$ and $\angle 2$ are complementary angles.

Two angles are complementary angles if

their sum is 90° .

(they add to 90°)

180°
supplementary angles



$\angle 3$ and $\angle 4$ are supplementary angles.

Two angles are supplementary angles if

their sum is 180° .

(they add to 180°)

Using the Vertical Angles Theorem Find the value of x .

The angles with labeled measures are vertical angles. Apply the Vertical Angles Theorem to find x .

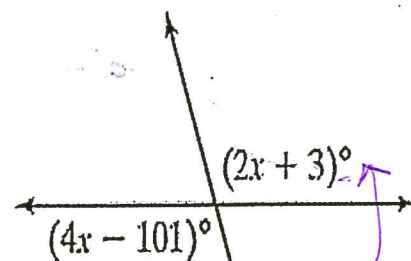
$$\begin{array}{r}
 4x - 101 = 2x + 3 \\
 +101 \quad +101 \\
 \hline
 4x = 2x + 104 \\
 -2x \quad -2x \\
 \hline
 2x = 104 \\
 \hline
 x = 52
 \end{array}$$

Vertical angles are congruent.

Addition Property of Equality

Subtraction Prop. of Eq.

Division P.O.E.



These are vertical angles