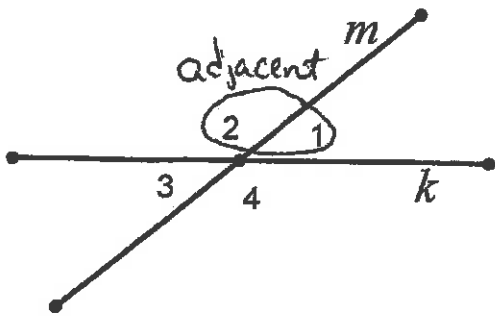


**Drawing Conclusions -
Vertical, Supplementary, & Complementary Angles**

Definitions:

Adjacent Angles: 2 \angle 's that share a side and vertex.

Non-Adjacent Angles: 2 \angle 's that either don't share a side or don't share a vertex.



Lines m and k intersect:

Which angles are adjacent?

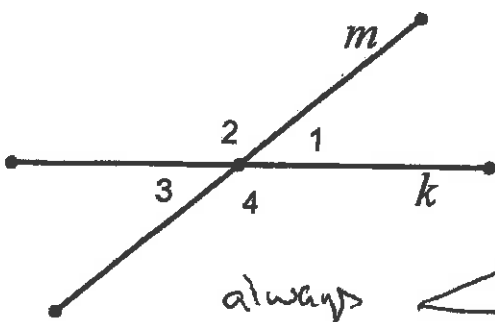
$\angle 1$ adj. to $\angle 2$

Which angles are non-adjacent?

$\angle 1$ and $\angle 3$ are not adj.

Vertical Angles: the non-adj \angle 's formed by 2 intersecting lines

Vertical Angles Theorem: Vert. \angle 's are \cong .



always
in
this
order

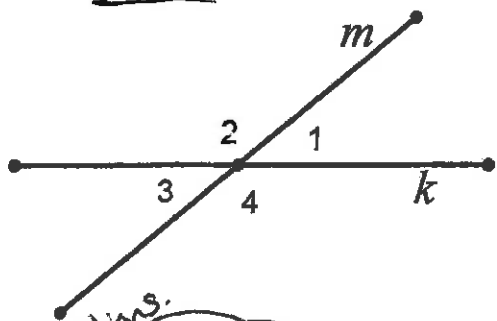
Given: Lines m & k intersect

Look for these in pictures.

Statements	Reasons
(Identify the Vert. \angle 's) 1. $\angle 1$ vert $\angle 3$	① non-adj \angle 's formed by int. lines are vertical.
(State they are \cong) 2. $\angle 1 \cong \angle 3$	② Vert. \angle 's are \cong .

Supplementary Angles: \angle 's that add to 180°

Supplementary Angles Theorem: the adj. \angle 's formed by 2 int. lines are Supplementary



Given: Lines m & k intersect. look for intersecting lines

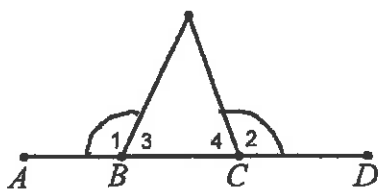
Statements	Reasons
(Identify the Supp. \angle 's) 1. $\angle 1$ Supp $\angle 2$	① adj. \angle 's formed by int lines are Supp.
(Use the Supp. \angle 's) 2. $m\angle 1 + m\angle 2 = 180^\circ$	② Supp. \angle 's add to 180° .

More options.

Option #1: Definition of Supp.

Option #2:

Supp. Theorem 1: $\cong \angle$'s have \cong supplements.

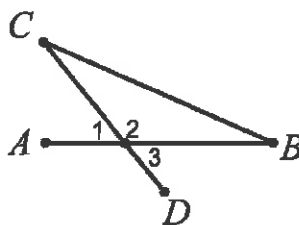


Given: \overline{ABCD}
 $\angle 1 \cong \angle 2$

Statements	Reasons
(Identify the Supp. \angle 's) 1. $\angle 1$ Supp $\angle 3$ $\angle 2$ Supp $\angle 4$	① adj. \angle 's formed by int lines are Supp.
(Use the Supp. \angle 's) 2. $\angle 3 \cong \angle 4$	② $\cong \angle$'s have \cong Supps.

Options #3:

Supp. Theorem 2: 2 \angle 's supp. to the same \angle are \cong .



Given: \overline{AB} and \overline{CD} intersect

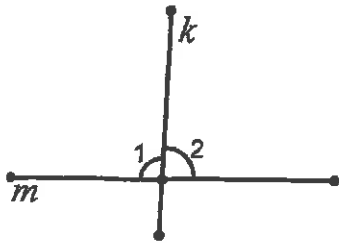
Statements	Reasons
(Identify the Supp. \angle 's) 1. $\angle 1$ Supp $\angle 2$ $\angle 1$ Supp $\angle 3$	① adj. \angle 's formed by int. lines are Supp.
(Use the Supp. \angle 's) 2. $\angle 2 \cong \angle 3$	② \angle 's Supp to the Same \angle are \cong .

Option #4:

Supp. Theorem 3: \angle 's that are both \cong and supp. are each 90° .

Given: Line m & k intersect.

$$\angle 1 \cong \angle 2$$

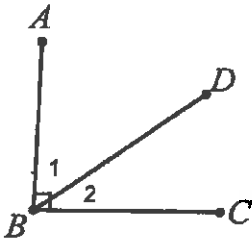


Statements	Reasons
(Identify the Supp. \angle 's) 1. $\angle 1$ Supp $\angle 2$	① adj. \angle 's formed by int. lines are Supp.
(Use the Supp. \angle 's) 2. $\angle 1$ and $\angle 2$ are Rt \angle 's.	② \angle 's that are \cong and Supp are both 90°

**Complementary Angles work exactly the same as Supplementary Angles!

Complementary Angles: \angle 's that add to 90°

Complimentary Angles Theorem: adjacent \angle 's that form a Rt \angle are Complementary.



Given: $\angle ABC$ is a right Angle

Conclusion: $\angle 1$ and $\angle 2$ are Complementary.

Complimentary Theorem 1: $\cong \angle$'s have \cong complements.

Complimentary Theorem 2: 2 \angle 's complementary to the same \angle are \cong .