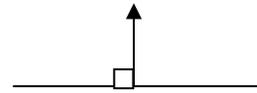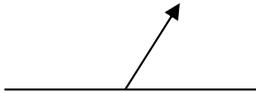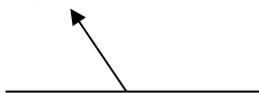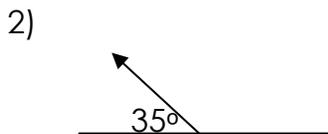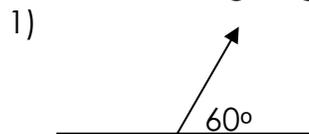Name: _____ Date: _____

Lesson 2-1 Vertical Angles and Linear Pairs

If two angles share a vertex and together they make a straight angle, then the two angles are called a <u>linear pair</u>.
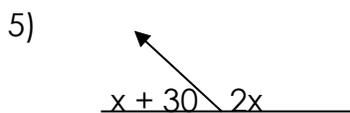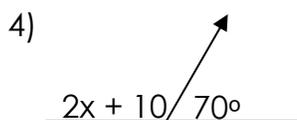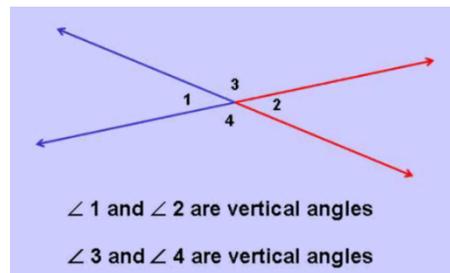
Practice Problems:
Find the missing angle.
1)   2)   3)

_____ 60º   _____ 35º _____   _____ 155º _____

Solve for x.
4)   5)

_2x + 10_ 70º   _x + 30_ 2x _____

6) Linear pairs could be defined as being supplementary angles because they always add up to 180º. Are all supplementary angles linear pairs? Explain.

Two angles are <u>vertical</u> angles if their sides form two pairs of opposite rays and they share a common vertex.

How do you know that vertical angles are congruent?

m∠1 + m∠3 = 180° because of the Linear Pair postulate
m∠2 + m∠3 = 180° because of the Linear Pair postulate

∠1 and ∠2 are vertical angles
∠3 and ∠4 are vertical angles

Set the two equations equal to each other since they both equal 180 degrees.

m∠2 + m∠3 = m∠1 + m∠3   Can you think of another way to prove it?
    −m∠3   −m∠3
m∠2 = m∠1

Therefore: ∠2 ≅∠1

Prove that ∠3 ≅∠4 using a similar method.

Practice Problems: Solve for the missing variable(s).

1)

$x°$
130 $y°$
$z°$

2)

$122°$ $(x - 12)°$

3)

$(2x - 17)°$ $(x + 55)°$

4)

$105°$ $(2x + 5)°$

5)

$(119 - x)°$

$(3x + 11)°$