March 23, 2015

5th
6th

Starter

① $3 + 2x = -9$

$-3 \quad -3$

$\frac{2x}{2} = \frac{-12}{2}$

$x = -6$

② $12 = -5n - 3$

$+3 \quad +3$

$\frac{15}{-5} = \frac{-5n}{-5}$

$-3 = n$

③ $\frac{h}{2} + 4 = 1$

$-4 \quad -4$

$2 \cdot \frac{h}{2} = -3 \cdot 2$

$h = -6$

④ $-7 = -3 + \frac{k}{4}$

$+3 \quad +3$

$4 \cdot -4 = \frac{k}{4} \cdot 4$

$-16 = k$

3/23 Adjacent / Vertical Angles

Remember from last year:
What are the different types of angles?

Classification of Angles

Acute:	*Right:*	*Obtuse:*	*Straight:*
Less than 90°	Equal to 90°	Greater than 90° and less than 180°	Equal to 180°

Definition of ANGLE: Two rays with a common endpoint

New word: ADJACENT

next to each other
share a common edge

When two states are **adjacent**,

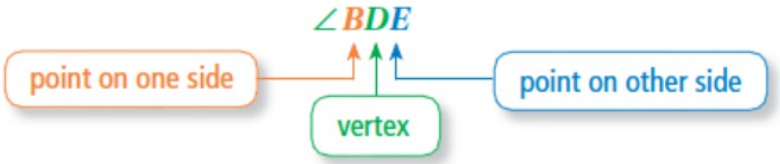
they are next to each other and they share a common border.

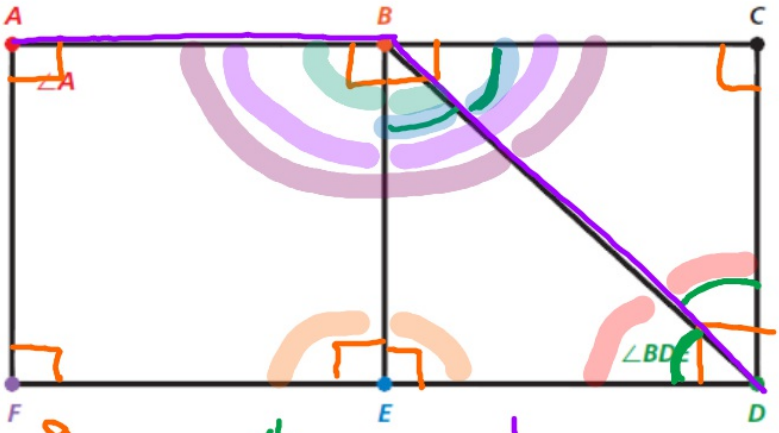
With your partner, come up with a list of things that could be considered 'adjacent.'

Stripes on the flag
papers in notebook
next door neighbor's yard
bananas in a bunch
blades of grass
2 walls in a corner
Stores in an outlet mall

Work with a partner. Some angles, such as $\angle A$, can be named by a single letter. When this does not clearly identify an angle, you should use three letters, as shown.

∠ means "angle."





ABEF and *BCDE* are squares.

8 4 1

a. Name all the right angles, acute angles, and obtuse angles.

b. Which pairs of angles do you think are *adjacent*? Explain.

Right
∠BCD
∠BED
∠EBC
∠EDC
∠AFE
∠ABE
∠BAF
∠FEB

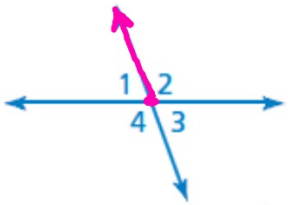
Acute
∠BDE
∠BDC
∠EBD
∠CBD

Obtuse
∠ABD

Adjacent Angles next to

Words Two angles are **adjacent angles** when they share a common side and have the same vertex.

Examples



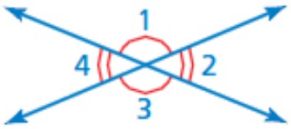
∠1 and ∠2 are adjacent.

∠2 and ∠4 are not adjacent.

Vertical Angles opposite

Words Two angles are **vertical angles** when they are opposite angles formed by the intersection of two lines. Vertical angles are **congruent angles**, meaning they have the same measure.

Examples

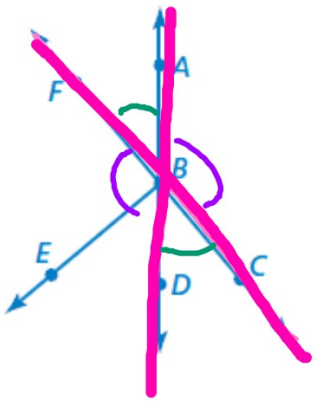


∠1 and ∠3 are vertical angles.

∠2 and ∠4 are vertical angles.

Use the figure shown.

a. Name a pair of adjacent angles.



b. Name a pair of vertical angles.

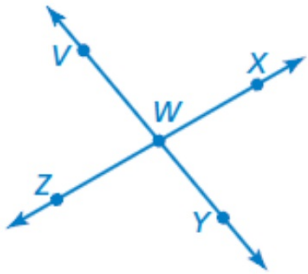
∠ABF and ∠CBD

∠ABC and ∠FBD

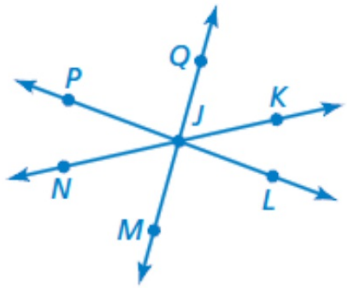
On Your Own

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.

1.



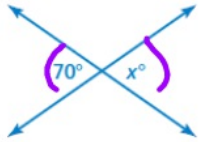
2.



Adj + VA =

Tell whether the angles are *adjacent* or *vertical*. Then find the value of x.

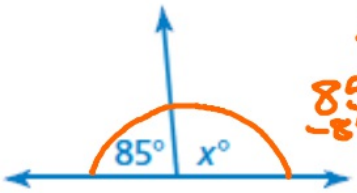
a.



VA

$70 = x$

3.



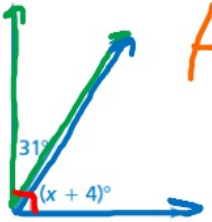
Adj

$85 + x = 180$

$-85 \quad -85$

$x = 95$

b.



Adj

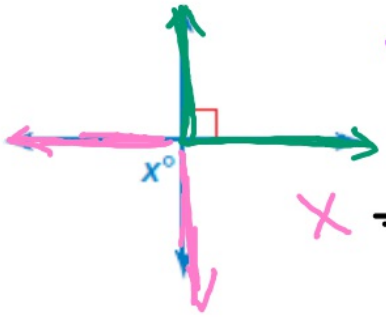
$31 + x + 4 = 90$

$35 + x = 90$

$-35 \quad -35$

$x = 55$

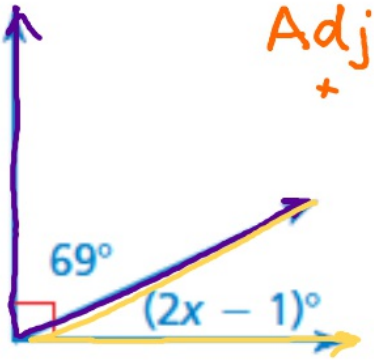
4.



VA

$x = 90$

5.



Adj

+

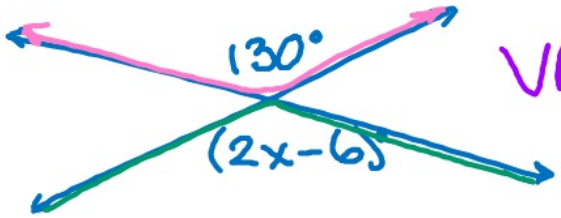
$69 + 2x - 1 = 90$

$68 + 2x = 90$

$-68 \quad -68$

$\frac{2x}{2} = \frac{22}{2}$

$x = 11$



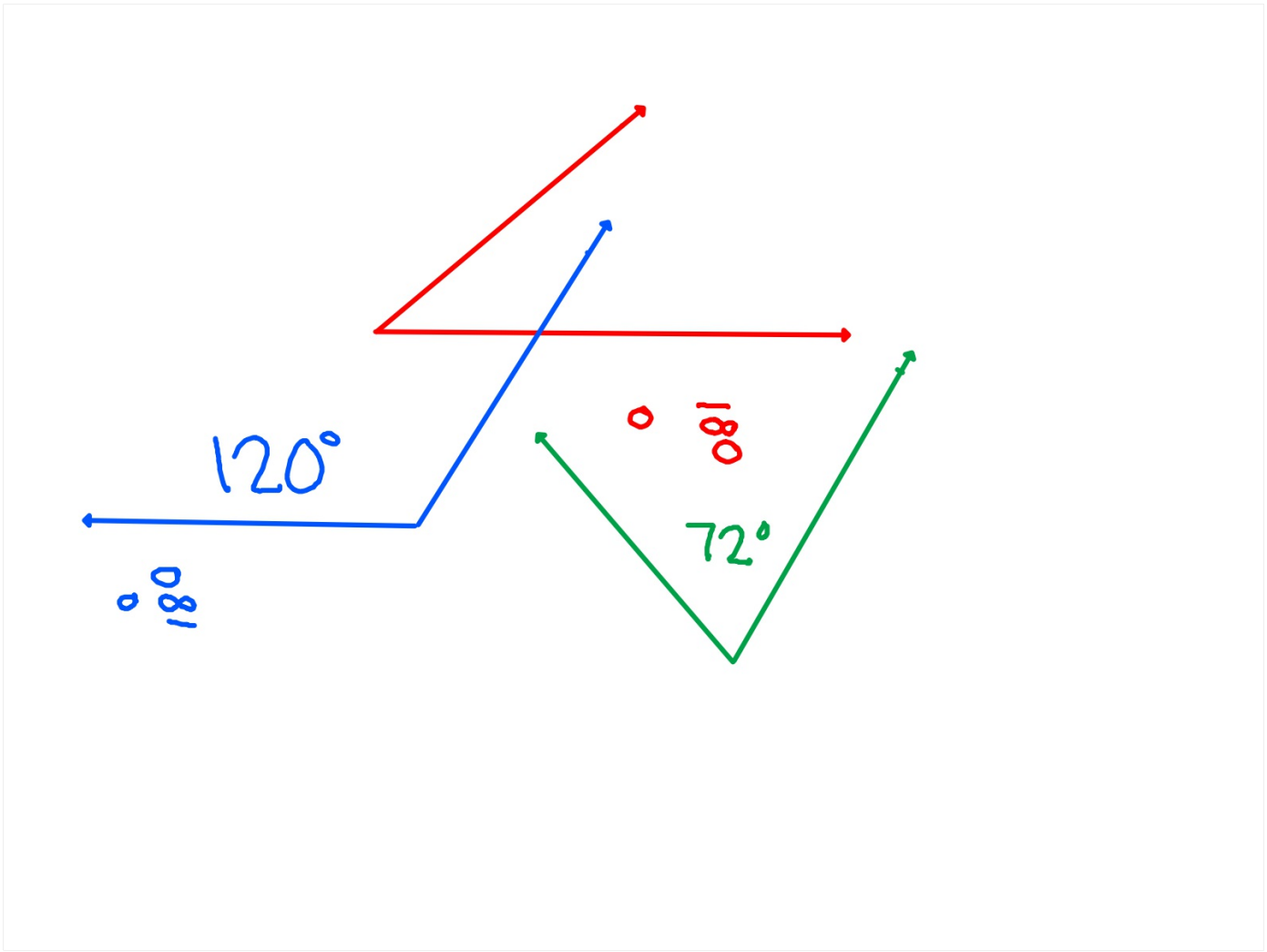
VA =

$130 = 2x - 6$

$+6 \quad +6$

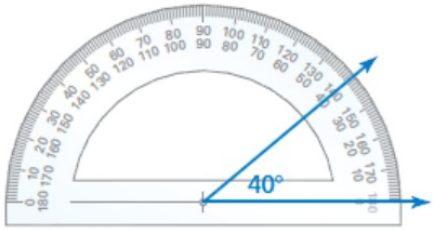
$\frac{136}{2} = \frac{2x}{2}$

$68 = x$

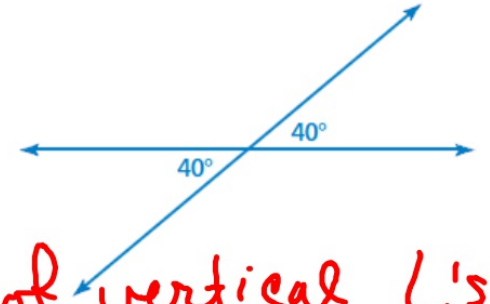

120°
80°
80°
72°

Using a protractor, draw a pair of vertical angles that measure 40°

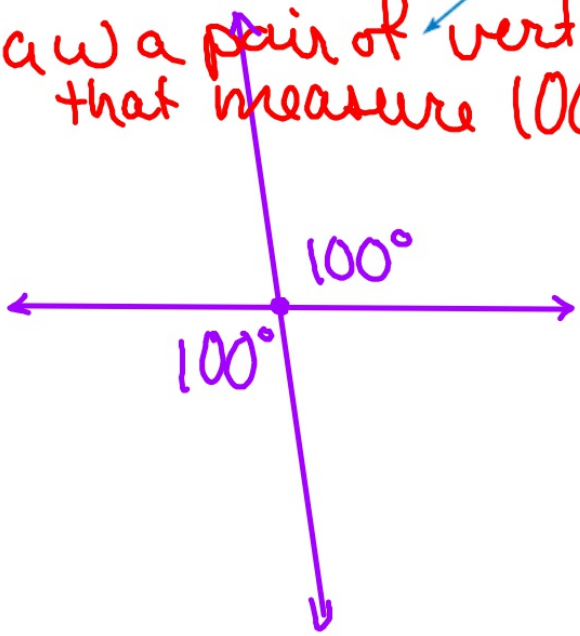
Step 1: Use a protractor to draw a 40° angle.



Step 2: Use a straightedge to extend the sides to form two intersecting lines.



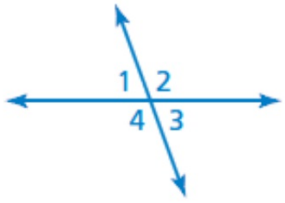
Draw a pair of vertical ∠'s that measure 100°.



Determine whether the statement is *always, sometimes,* or *never* true.

21. When the measure of $\angle 1$ is 70°, the measure of $\angle 3$ is 110°.

22. When the measure of $\angle 4$ is 120°, the measure of $\angle 1$ is 60°.



23. $\angle 2$ and $\angle 3$ are congruent.

24. The measure of $\angle 1$ plus the measure of $\angle 2$ equals the measure of $\angle 3$ plus the measure of $\angle 4$.

Homework

Gold WS1

Due Thursday