Tuesday, August 14, 2012

TISK

1) Simplify: $20 + 3(2^3)$
2) Divide. Write your answer in simplest form.
   $3\frac{2}{3} \div \frac{1}{4}$
3) Classify the number $\sqrt{7}$

We will have 3 mental math questions today.

Homework Check

18) $\measuredangle PMQ \cong \measuredangle QMN$

20) $\measuredangle POQ, \measuredangle QON, \measuredangle NOM, \measuredangle MOP, \measuredangle QOM, \measuredangle PON$

22) Sample: $\overrightarrow{MJ}$ and $\overrightarrow{MN}$

24) Sample: $\measuredangle LMN$

26) No, more than one angle has *P* as a vertex, so naming an angle $\measuredangle P$ would be confusing.

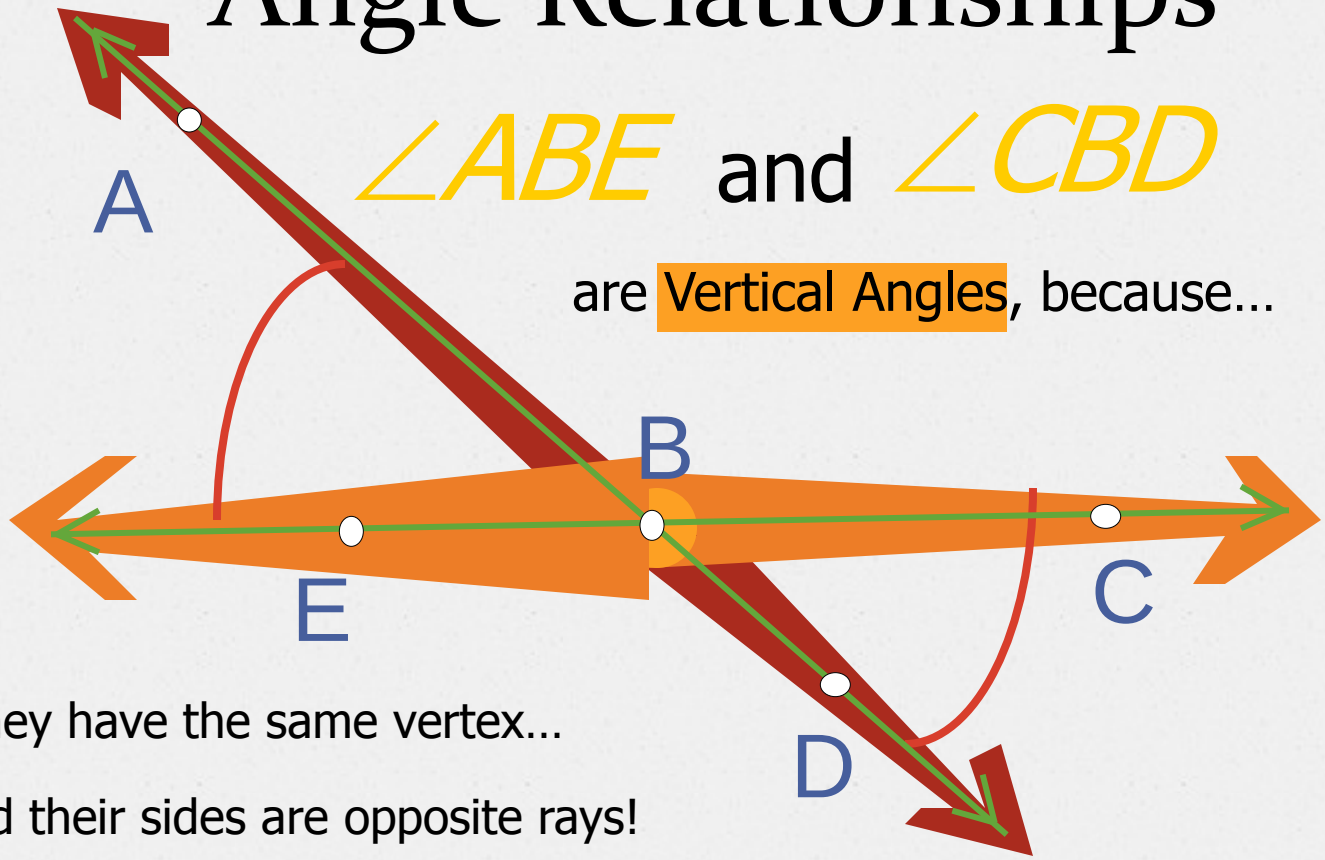
28) No, both rays contain *P* and *N*, however, their initial points differ.

29-31) Drawings will vary.

39) a. 1, 3, 6, 10, 15 b. It is an arithmetic sequence.

c. 21, 45 d. $a = \frac{n(n-1)}{2}$, where *a* = number of angles and *n* = number of rays

Angle Relationships



$\angle ABE$ and $\angle CBD$

are Vertical Angles, because…

They have the same vertex…

And their sides are opposite rays!

Can you name another pair of vertical angles in this picture?

Exploring Vertical Angles

An important theorem we will use a lot this year:

Vertical Angles Theorem

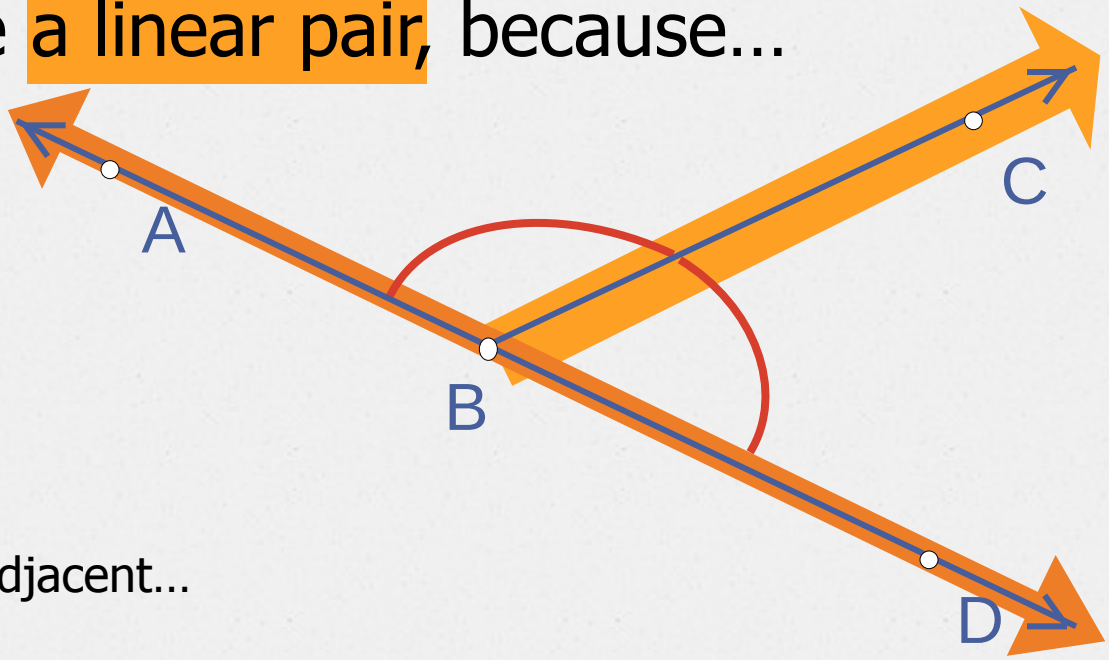
If two angles are vertical angles, then they are congruent.

If 2 $\measuredangle s$ are vertical $\measuredangle s \Rightarrow$ they are $\cong$

Angle Relationships

$\angle ABC$ and $\angle CBD$

are a linear pair, because…



…they are adjacent…

…and their noncommon sides form a line

Exploring Linear Pairs

An important postulate we will use often:

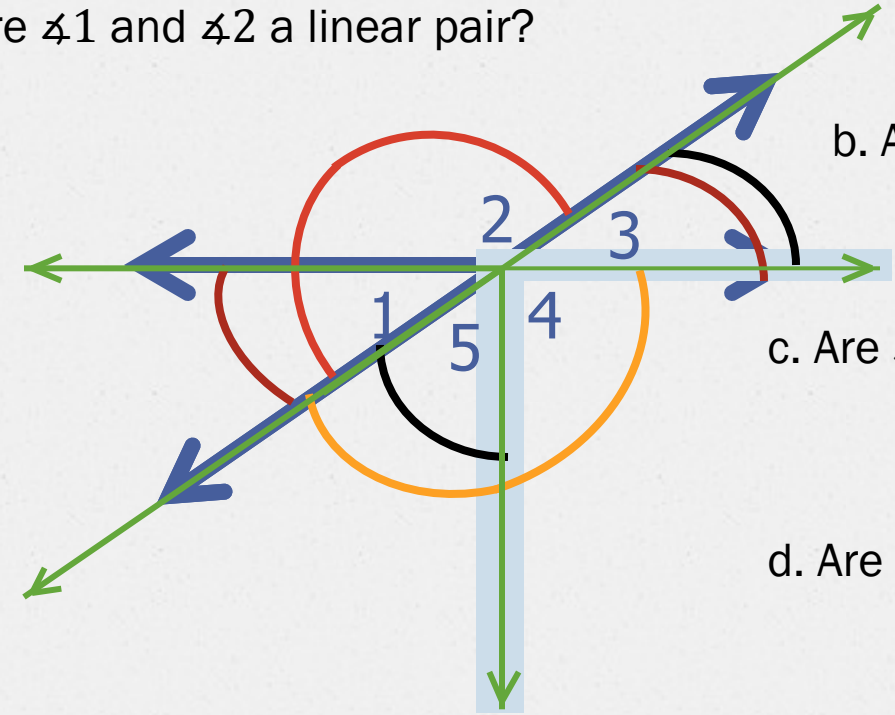
Linear Pair Postulate

If two angles form a linear pair, then the sum of their angle measures is 180º.

If 2 $\measuredangle s$ are a linear pair $\Rightarrow$ their sum = 180°

Example 1.

a. Are ∡1 and ∡2 a linear pair?



Yes!

b. Are ∡4 and ∡5 a linear pair?

No!

c. Are ∡3 and ∡5 vertical angles?

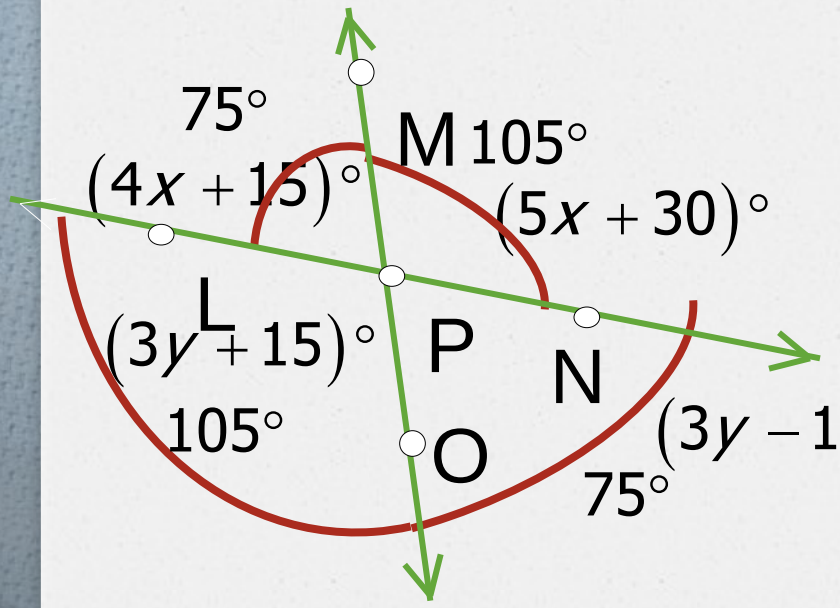
No!

d. Are ∡1 and ∡3 vertical angles?

Yes!

Example 2.

- Solve for *x* and *y*. Then find the angle measures.



$$(4x+15)° + (5x+30)° = 180°$$

$$9x + 45 = 180$$

$$9x = 135$$

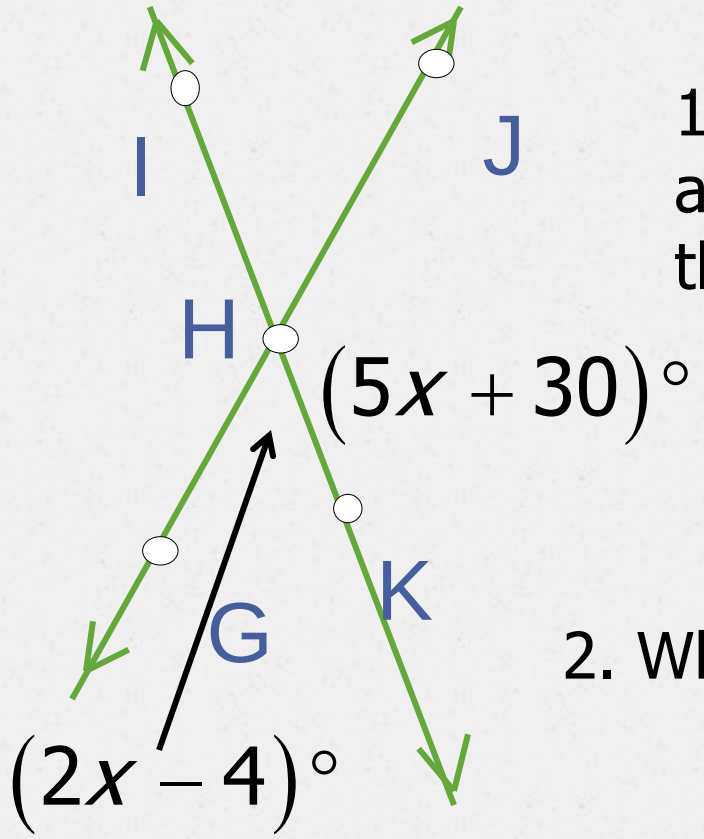
$$x = 15$$

$$(3y+15)° + (3y-15)° = 180°$$

$$6y = 180$$

$$y = 30$$

Check Points!

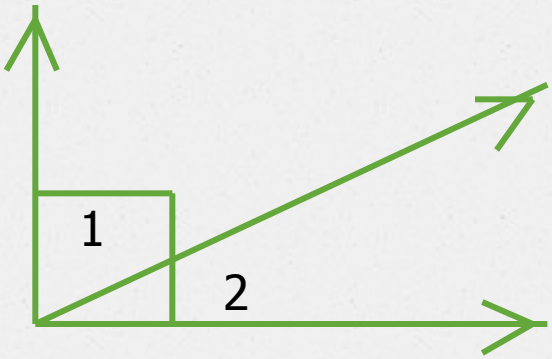


1. Name one pair of vertical angles and one pair of angles that form a linear pair.

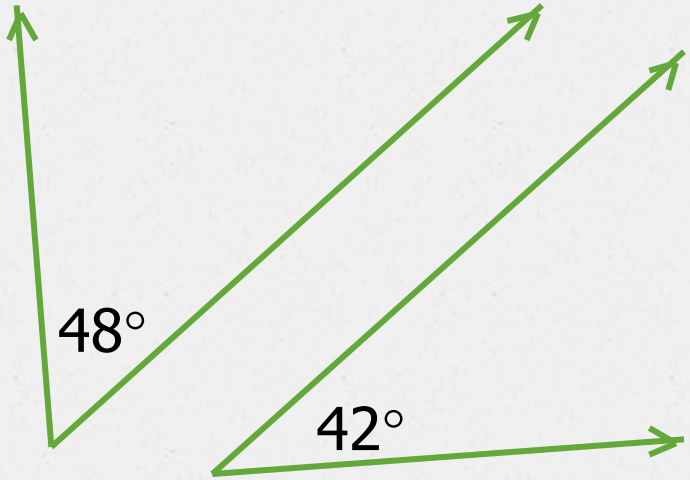
2. What is the measure of $\measuredangle GHI$?

Angle Relationships

Complementary Angles (def.):
Two angles whose measures have a sum of 90º.



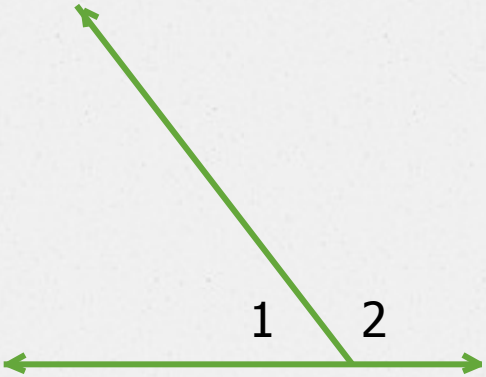
complementary, adjacent



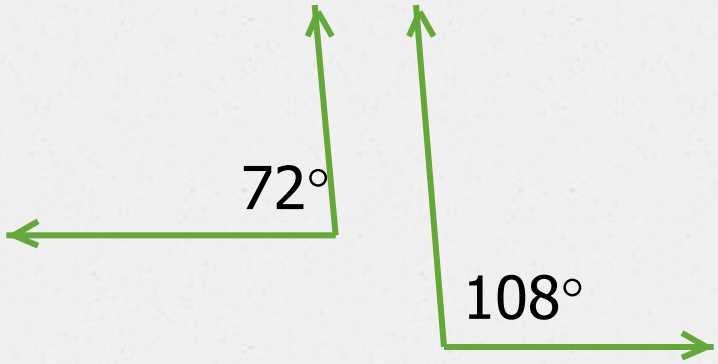
complementary, nonadjacent

Angle Relationships

Supplementary Angles (def.):
Two angles whose measures have a sum of 180º.



supplementary, adjacent



supplementary, nonadjacent

Example 3.

- Given that $\measuredangle G$ is a supplement of $\measuredangle H$ and $m\measuredangle G$ is 82°, find $m\measuredangle H$.

$$m\measuredangle G + m\measuredangle H = 180$$
$$82 + m\measuredangle H = 180$$
$$m\measuredangle H = 98$$

- Given that $\measuredangle U$ is a complement of $\measuredangle V$ and $m\measuredangle U$ is 73°, find $m\measuredangle V$.

$$m\measuredangle U + m\measuredangle V = 90$$
$$73 + m\measuredangle V = 90$$
$$m\measuredangle V = 17$$

Example 4.

- $\measuredangle T$ and $\measuredangle S$ are supplementary. The measure of $\measuredangle T$ is half the measure of $\measuredangle S$. Find $m\measuredangle S$.

$$m\measuredangle T + m\measuredangle S = 180$$

$$m\measuredangle T = \frac{1}{2} m\measuredangle S$$

$$\frac{1}{2} m\measuredangle S + m\measuredangle S = 180$$

$$m\measuredangle S + 2m\measuredangle S = 360$$

$$3m\measuredangle S = 360$$

$$m\measuredangle S = 120$$

Homework

- p. 59 #28-34, 36