Warm up

Solve

1) $0 = 3x^2 + 4x + 1$

$$(3x + 1)(x + 1)$$
$$-1 \qquad -1$$

$3x{+}1 \cdot x{+}1$

$3x{+}1 = 0 \quad 3x = -1$

$x{+}1 = 0 \qquad x = -\frac{1}{3}$

7-1
Logic and Properties

- I can identify the hypothesis and conclusion of a conditional statement.
- Given a biconditional statement, I can write two conditional statements.
- I can write a biconditional statement from 2 conditional statements.
- I can give a counterexample to refute a claim.

LOGIC CLIP
(Click the paperclip.)

Logic (2.1).flv

February 4, 2019

Discussion of logic from clip.

A **conditional statement** ($p \rightarrow q$) has two parts, a hypothesis and a conclusion. When the conditional statement is written in **if-then form,** the 'if' part contains the **hypothesis** (p) and the 'then' part contains the **conclusion.** (q)

Give the Hypothesis and the conclusion of the following statements:

If she is made out of wood, then she is a witch.

Hypothesis: *She is made out of wood*

Conclusion: *she's a witch*

If you are a Caveman, then you are awesome.

Hypothesis: *you're a Caveman*

Conclusion: *you're awesome*

A **biconditional statement** is a statement that contains the phrase "If and only if." or "iff" $(q \leftrightarrow p)$

Writing a biconditional statement is equivalent to writing a conditional statement and its converse.

Rewrite the biconditional statement as two conditional statements.

1. An animal meows if and only if it is a cat.

If an animal meow, the it's a Cat

If It's a Cat, then it meows

2. It's Friday night iff we are having pizza for dinner.

If it's Friday, then pizza for dinner

If pizza's for dinner, then it's Friday.

Rewrite the ~~given~~ statement in two **if-then** form statements.
Then, combine them using if and only if to form a biconditional statement.
Lastly, state whether the biconditional statement is true or false.
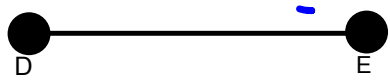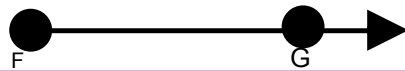
1. Two angles are supplementary if their sum is 180°.

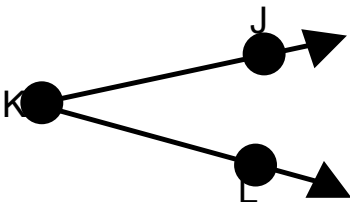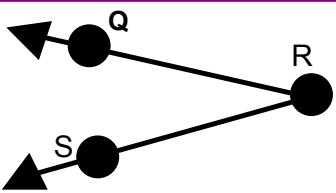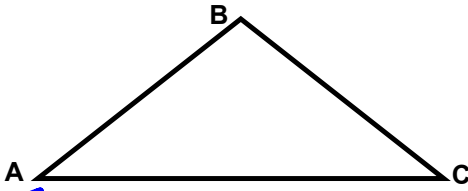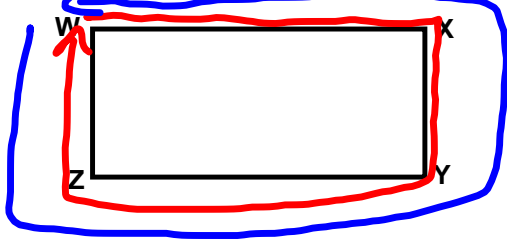If 2 ∠'s are supp. then their sum is 180°

If the sum is 180, then 2 ∠'s are supp.

True

2. An angle that measures 30° is an acute angle.

If an ∠ is 30°, then it's an acute∠.

If an ∠ is acute, then it's 30°.

False 45°

Vocabulary	Drawing	Notation
Line:		$\overleftrightarrow{BC}$
Line segment:		$\overline{DE}$
Ray:		$\overrightarrow{FG}$
Angle:		$\angle JKL$ $\angle LKJ$ $\angle K$
Measure of Angle:		$m\angle QRS$ $m\angle R$ $m\angle SRQ$
Triangle:		$\triangle ABC$ $\triangle CAB$ $\triangle CBA$
Quadrilateral:		$\square WXYZ$

Decide if the statements are True or False.
If False, give a counterexample.

1. All living things need water.
   False - Water Bear

2. Everyone in movies can act.
   False - Kirsten Stewart

3. No new computer has a floppy disk drive.
   True

4. Everyone has an Instagram.
   False - Miss Cherry