

Write

Define each term in your own words.

1. counterexample
2. conditional statement
3. truth value
4. truth table

Remember

A conditional statement is a statement that can be written in the form "if p , then q ." Written as $p \rightarrow q$, it is read " p implies q ."

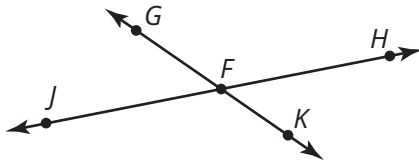
The variable p represents the hypothesis and the variable q represents the conclusion.

Truth tables are used to organize truth values of conditional statements. A postulate is a statement that is accepted without proof. A theorem is a statement that can be proven.

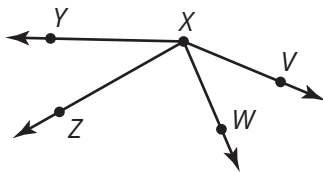
Practice

1. Write the postulate that confirms each statement.

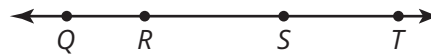
- a. Angles GFH and KFH are supplementary angles.



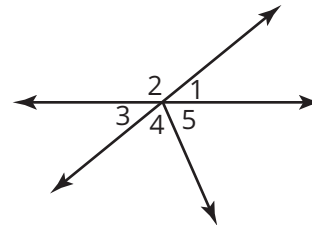
- c. $m\angle WXZ + m\angle ZXY = m\angle WXY$



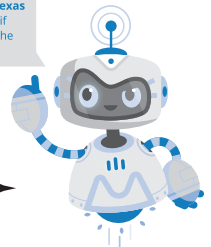
$$b. m\overline{RS} + m\overline{ST} = m\overline{RT}$$



- d. $m\angle 1 + m\angle 2 = 180^\circ$



Visit livehint.com/texas or use this QR code if you need a hint on the Practice questions.



2. Complete a truth table for the conditional statements.

- a. If $\angle 1$ and $\angle 2$ are vertical angles, then $\angle 1 \cong \angle 2$.
- b. If $m\angle 1 = 90^\circ$, then $\angle 1$ is a right angle.
- c. If $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, then \overleftrightarrow{AB} does not intersect \overleftrightarrow{CD} .
- d. If a shape is a square, then the shape has four equal sides.

Stretch

Let the variable p represent the statement "the figure is a square" and let the variable q represent the statement "the figure is a quadrilateral." Complete a truth table for the statements, then determine if conditional statements are commutative, that is $p \rightarrow q$ is the same as $q \rightarrow p$, by completing a truth table for $q \rightarrow p$.

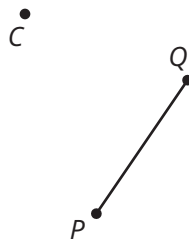
Review

1. Complete each rotation given the function.

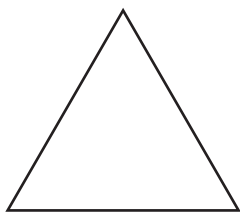
a. $R_{X, -65}(\overline{AB})$



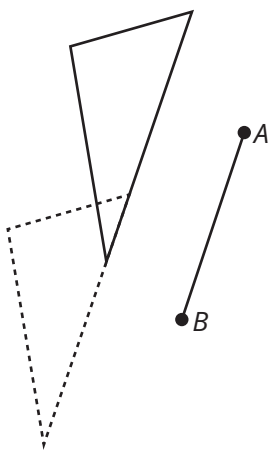
b. $R_{C, 35}(\overline{PQ})$



2. Determine how many lines of symmetry the equilateral triangle has. Then draw the lines of symmetry.



3. Write a function to describe the translation.



4. Write the equation of a line that passes through the point $(-8, 2)$ and is parallel to the line $3x - 2y = 12$.

5. Write the equation of a line that passes through the point $(5, -7)$ and is perpendicular to the line $-2x + 6y = -4$.