

1. Write the inverse of the following conditional.

“If the basketball team scores 100 points, then the team will win the game.”

2. Write the statement that is logically equivalent to the following conditional.

“If  $x = 4$ , then  $5x + 2 = 22$ .”

3. Write the converse of the following conditional. If the converse is true, write the statement as a biconditional. If the converse is false, provide a counterexample showing why.

“If two lines are parallel, then they will not intersect.”

4. Write the converse of the following conditional. If the converse is true, write the statement as a biconditional. If the converse is false, provide a counterexample showing why.

“If two points are collinear, then they lie on the same line.”

**Use the Law of Detachment and/or the Law of Syllogism to make a conclusion. Write *not possible* if a conclusion cannot be drawn.**

5. If the weather is wet the Huskies will not play soccer. If the Huskies do not play soccer, Nathan can stop at the ice cream shop.

6. People who live in glass houses should not throw stones. Lindsay shouldn't throw stones.

7. If you practice table tennis ever day, you will become a better player. Lucy practices table tennis every day.

8. Is the following a good definition? Explain why or why not.

“Perpendicular lines are lines that intersect to form right angles.”

**Which of the following properties is illustrated in the example below?**

9. If  $m\angle A = 15$ , then  $3m\angle A = 45$  \_\_\_\_\_

10. If  $KL = MN$ , then  $MN = KL$  \_\_\_\_\_

11. If  $AB - BC = 12$ , then  $AB = 12 + BC$  \_\_\_\_\_

12. **(1)** Write the statement in symbolic form, using the symbols given below.

**(2)** Tell whether the statement is true or false.

Let  $m$  represent “I eat meat” (True)

Let  $s$  represent “I eat steak” (True)

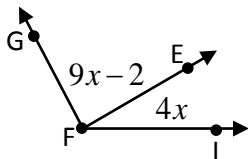
Let  $a$  represent “I eat asparagus” (False)

a. If I don't eat meat, then I don't eat asparagus. \_\_\_\_\_

b. If I eat asparagus, then I eat steak. \_\_\_\_\_

c. If I do not eat steak, then I do not eat meat. \_\_\_\_\_

13. In the figure below,  $m\angle GFI = 128$ . Solve for  $x$  and **justify each step**.



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