7.4 Arguing with Angles

Name:_____Per: _____

SHOW YOUR WORK FOR FULL CREDIT. NO WORK IN PEN.

If – Then Statements

Conditional statements are in *if-then* form. There are two parts to an *if-then* statement: a **hypothesis** and a **conclusion**. The part of the sentence that follows **"if"** is the hypothesis and the part of the sentence that follows **"then"** is the conclusion.

> If {hypothesis}, then {conclusion}.

Give 3 conditional (If/Then) statements about the drawing to the right.
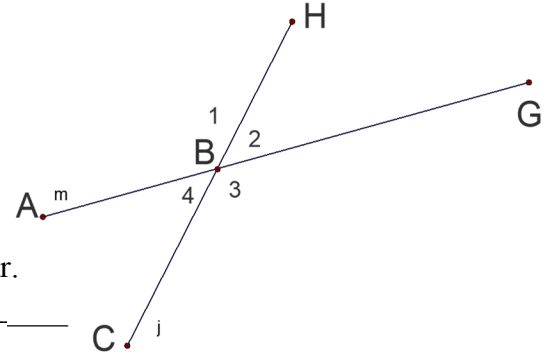
1. _____
2. _____
3. _____
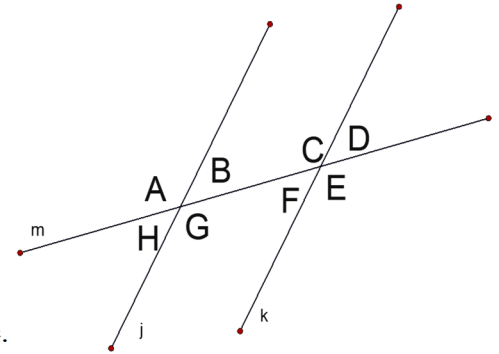
A conditional statement is considered **false** if the "if" part is true, but the **conclusion is unrelated or false**. This can be proven with a counterexample.

4. Give one **false** conditional If-Then statement based on the figure above. _____

_____

5. Why do you believe that your statement is false? _____

Based on the following figure, tell which statements are true or false and then defend your answer.

6. Angles 1 and 2 are a linear pair: CIRCLE: True   False
   Why?_____
7. **If the** $m \angle 3$ **is** $130°$, **then** $m \angle 2$ **is** $50°$: CIRCLE: True   False
   Why?_____
8. **If** $m \angle 3$ **is** $130°$, **then** $m \angle 2$ **is congruent to m** $\angle 4$:   True   False
   Why?_____
9. **If** $m \angle 1$ **is congruent to the m** $\angle 2$, **then** the lines are perpendicular.
   CIRCLE: True   False   Why? _____
10. **If** $m \angle 1$ **is** $180°$, **then** $\angle ABH$ **is a** *"straight angle"*: True   False
    Why? _____
11. $\angle CBH$ is a zero angle. True   False Why?_____
12. **If** $m \angle 2$ **is** $0°$, **then** $\angle HBG$ **is a** *"zero angle"*: True   False Why? _____
13. Based on your observations above, define *"straight angle"*: _____
    Give an example of a *straight angle* from the figure above: _____
14. Based on your observations above, define *"zero angle"*: _____
    Give an example of a *zero angle* from the figure above: _____

For the figure to the right: Which lines (if any) are parallel in the following picture **IF**:

15. $m \angle 1 = m \angle 2$ _____
16. $m \angle 2 = m \angle 3$ _____
17. $m \angle 1 = m \angle 3$ _____
18. Find x and y if a||b and c||d.

   x = _____ y = _____
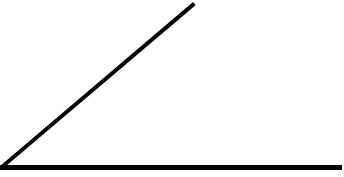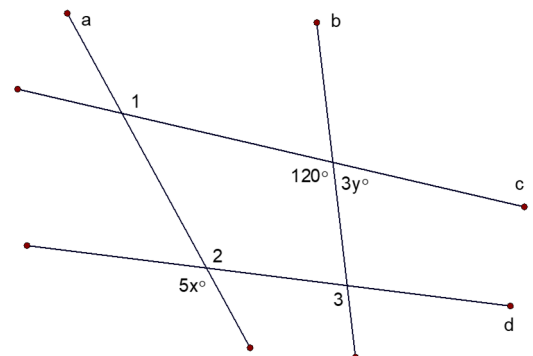
Complete the following conditional statement.

19. **If** corresponding angles are congruent, **then** _____.

20. List three angle relationships on a transversal that , if congruent, will show parallel lines.

In the questions below, if the $m \angle 1 = 65°$, $m \angle 2 = 25°$, $m \angle 3 = 115°$, and $m \angle 4 = 155°$:

    A. Complementary Angles   B. Congruent Angles C. Supplementary Angles   D. None of these.

21. $\angle 1$ and $\angle 2$ are _____.

22. $\angle 1$ and $\angle 3$ are _____.

23. $\angle 1$ and $\angle 4$ are _____.

24. $\angle 2$ and $\angle 3$ are _____.

25. $\angle 3$ and $\angle 4$ are _____.

26. $\angle 2$ and $\angle 4$ are _____

27. Make an exact copy if angle A in Box B. Then make a mirror copy of A in Box C.

A	B	C

28. Construct a line parallel to the line (left) and a parallel line through the given point (right).

Make conclusions about the following statements:

29. Angles A and B are complementary. **If** $m \angle A$ is $49°$, **then** the measure of $\angle B$ is _____

30. Angles Q and R are supplementary. **If** $m \angle Q$ is $127°$, **then** the measure of $\angle R$ is _____

Given the coordinate points (**–5, 10**) & (**2, –8**), find the following. SHOW YOUR WORK.

31. Find the midpoint of the two points. _____

32. Find the endpoint if (**2, –8**)were the midpoint. _____

33. Find the endpoint if (**–5, 10**) were the midpoint. _____