2-1 Using Inductive Reasoning to Make Conjectures

Find the next item in each pattern.

1. 1, 10, 18, 25, ...
2. July, May, March, ...
3. $\frac{1}{8}, -\frac{1}{4}, \frac{1}{2}, \ldots$
4. $|, \dagger, \ddagger, \ldots$

5. A biologist recorded the following data about the weight of male lions in a wildlife park in Africa. Use the table to make a conjecture about the average weight of a male lion.

ID Number	Weig
A19025M	38
A19045M	42
A19205M	44
A19565M	39
A19745M	41

6. Complete the conjecture "The sum of two negative numbers is __?__."
7. Show that the conjecture "If an even number is divided by 2, then the result is an even number" is false by finding a counterexample.

2-2 Conditional Statements

8. Identify the hypothesis and conclusion of the conditional statement "An angle is obtuse if its measure is 107°."

Write a conditional statement from each of the following.

9. A whole number is an integer.
10. 

11. The diagonals of a square are congrue

Determine if each conditional is true. If false, give a counterexample.

12. If an angle is acute, then it has a measure of 30°.
13. If $9x - 11 = 2x + 3$, then $x = 2$.
14. Write the converse, inverse, and contrapositive of the statement "If a number is even, then it is divisible by 4." Find the truth value of each.

2-3 Using Deductive Reasoning to Verify Conjectures

15. Determine if the following conjecture is valid by the Law of Detachment.
Given: If Sue finishes her science project, she can go to the movie. Sue goes to the movie.
Conjecture: Sue finished her science project.
16. Use the Law of Syllogism to draw a conclusion from the given information.
Given: If one angle of a triangle is 90°, then the triangle is a right triangle. If a triangle is a right triangle, then its acute angle measures are complementary.

2-4 Biconditional Statements and Definitions

17. For the conditional "If two angles are supplementary, the sum of their measures is 180°," write the converse and a biconditional statement.
18. Determine if the biconditional "$\sqrt{x} = 4$ if and only if $x = 16$" is true. If false, give a counterexample.

HW Review for Quiz
P103
#1-18