

Geometry

Name _____

2.1 Inductive Reasoning and Conjecture

Date _____ Hour _____

1) For points P, Q, and R, $PQ=9$, $QR=15$, and $PR=12$. Make a conjecture and draw a figure to illustrate your conjecture.

2) Make a conjecture about the next item in each sequence.

-8, -5, -2, 1, 4

For Exercises 3 and 4, refer to the table and find a counterexample for each statement.

3) The number of youth anglers in a state is less than one-fourth of the total anglers in that state.

Fishing		
State	Number of Youth Anglers	Percent of Total Anglers per State
California	1,099,000	31
Florida	543,000	15
Michigan	452,000	25
North Carolina	353,000	21.5

4) Each state listed has at least 3,000,000 anglers.

Source: American Sportfishing Association

Make a conjecture about the next item in each sequence.

5)



6) -5, 25, -125, 625

7) 4, 6, 9, 13, 18

Determine whether each conjecture is true or false for exercises 8-10. Give a counterexample for any false conjecture.

8) **Given:** $A(-4,8)$, $B(3,8)$, $C(3,5)$

Conjecture: $\triangle ABC$ is a right triangle

9) **Given:** points W , X , Y , and Z

Conjecture: W , X , Y , and Z are noncollinear

10) **Given:** $DE = EF$

Conjecture: E is the midpoint of DF

11) Most homes in the northern United States have roofs made with steep angles. In the warmer southern states, homes often have flat roofs. Make a conjecture about why the roofs are different.

12) Write a statement. Find a counterexample for the statement. Explain your reasoning.