$\qquad$
$\qquad$ Hour $\qquad$

1) For points $P, Q$, and $R, P Q=9, Q R=15$, and $P R=12$. 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.
4) Each state listed has at least $3,000,000$ anglers.

| Fishing |  |  |
| :--- | ---: | :---: |
| State | Number of <br> Youth <br> Anglers | Percent of <br> Total Anglers <br> per State |
| California | $1,099,000$ | 31 |
| Florida | 543,000 | 15 |
| Michigan | 452,000 | 25 |
| North <br> Carolina | 353,000 | 21.5 |

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. A false conjecture is any conjecture that is not ALWAYS true.
8) Given: $A(-4,8), B(3,8), C(3,5)$

Conjecture: $\triangle A B C$ is a right triangle
9) Given: points $W, X, Y$, and $Z$

Conjecture: $\mathrm{W}, \mathrm{X}, \mathrm{Y}$, and Z are noncollinear
10) Given: $D E=E F$

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.

