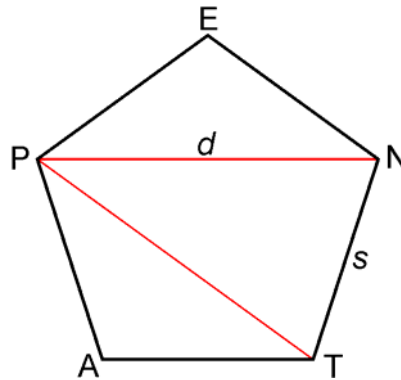


Pentagon & Golden Triangle

NAME _____

Use the figure below to answer Questions 1-5.

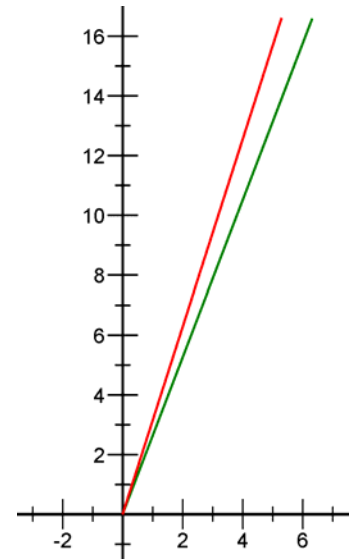


In regular pentagon PENTA, the ratio of diagonal length d to side length s equals the golden ratio ϕ ; that is,

$$\phi = \frac{d}{s}.$$

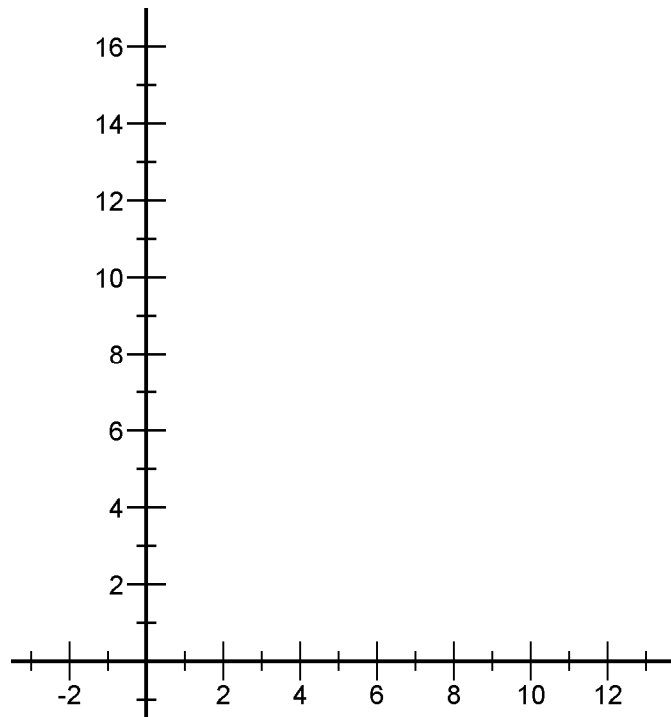
Isosceles $\triangle PNT$, with legs that are diagonals of the pentagon, is called a *golden triangle*. Consider the side length, diagonal length, perimeter of the pentagon, and perimeter of the golden triangle.

1. One of the graphs to the right represents the **perimeter of a regular pentagon** as a function of diagonal length; the other graph represents the **perimeter of a golden triangle** as a function of diagonal length. Identify which graph represents the pentagon function and which represents the triangle function. Explain your choices.



2. Identify two different functions represented by the measures of elements in a regular pentagon. Name the independent and dependent variables in each function.

3. On the grid below, sketch the graph of each function from Question 2. Label each graph, and explain why the graphs look similar or different.



4. Identify two different functions represented by measures of the elements in a golden triangle. Identify the independent and dependent variable in each function.

5. On the grid below, sketch on the same axes the graph of each function in Item 4. Label each graph and explain why the graphs look similar or different.

