

Name _____

Date _____



Objective 1 TEKS A.1.A Review

A.1.A Describe independent and dependent quantities in functional relationships.

In a function, the input is the independent quantity. The output is the dependent quantity because the value of the output depends on the value of the input.

$$\begin{array}{ccc}
 & \text{Function} & \\
 & y = -3x + 5 & \\
 \uparrow & & \uparrow \\
 \text{Dependent Quantity, } y & & \text{Independent Quantity, } x \\
 \text{(Output)} & & \text{(Input)}
 \end{array}$$

When a function is shown as a graph, the independent variable is shown on the horizontal axis and the dependent variable is shown on the vertical axis.

EXAMPLE On average, a young tree in Jackie's yard grows four feet a year. The function $h = 4y$ represents the height of the tree in feet after y years. Which quantity is the independent quantity in this relationship? Which is the dependent quantity?

4 feet	This is a constant quantity, not a variable one. It is neither independent nor dependent.
Time that has passed	This is the independent quantity because the number of years that have passed determines the height of the tree.
Height of the tree	This is the dependent quantity because the height of the tree depends on how much time has elapsed.
4 feet per year	This expresses the rate of growth, which is constant. It is neither independent nor dependent.

YOU DO IT Mr. Wu is driving at the constant rate of 65 miles per hour on the expressway. The function $d = 65h$ represents the number of miles d he has traveled after h hours. Which quantity is the independent quantity in this relationship? Which is the dependent quantity? Which is neither? Write your answers in the blanks.

- Miles traveled dependent quantity
- Speed neither
- 65 miles neither
- Hours traveled independent quantity