

Points on a Graph

Task

Suppose f is a function.

- a. If $10 = f(-4)$, give the coordinates of a point on the graph of f .
- b. If 6 is a solution of the equation $f(w) = 1$, give a point on the graph of f .



Commentary

This task is designed to get at the common student confusion between the independent and dependent variables. This confusion often arises in situations like (b), where students are asked to solve an equation involving a function, and confuse that operation with evaluating the function.

This task is adapted from *Functions Modeling Change: A Preparation for Calculus*, Connally et al., Wiley 2010.

Solution

- a. The graph of a function is the set of ordered pairs $(x, f(x))$, with x ranging over the domain of f . So the point $(-4, f(-4))$ is on the graph of f , and since $10 = f(-4)$, this means that the point $(-4, 10)$ is on the graph.
- b. If 6 is a solution to $f(w) = 1$, that means that $f(6) = 1$, so the point $(6, 1)$ is on the graph of f .

