Yam in the Oven

Task

You put a yam in the oven. After 45 minutes, you take it out. Let $f(t)$ be the temperature of the yam t minutes after you placed it in the oven.

In (a)– (d), explain the meaning of the statement in everyday language.

a. $f(0) = 65$

b. $f(5) < f(10)$

c. $f(40) = f(45)$

d. $f(45) > f(60)$

Commentary

The purpose of this task is to give students practice interpreting statements using function notation. It can be used as a diagnostic if students seem to be having trouble with function notation, for example interpreting $f(x)$ as the product of f and x.

Solution

a. $f(0) = 65$ means that when you placed the yam in the oven, its temperature was 65 degrees Fahrenheit.

b. $f(5) < f(10)$ means that the temperature of the yam 5 minutes after you placed it in the oven was less than its temperature 10 minutes after you placed it in the oven. This would be because the yam's temperature will increase from 65 degrees Fahrenheit during the first few minutes it's in the oven.

c. $f(40) = f(45)$ means that the temperature of the yam 40 minutes after you placed it in the oven was the same as its temperature 45 minutes after you placed it in the oven. This would be because the temperature of the yam eventually plateaus.

d. $f(45) > f(60)$ means that the temperature of the yam 45 minutes after you placed it in the oven was greater than its temperature 60 minutes after you placed it in the oven. This would be because the yam began to cool down after you removed it from the oven.

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