

Advanced Challenge Level 1 Problem #26

Consider the following function.

Function d: Point A is exactly 120 miles north of point B. Point C is exactly 160 miles west of point B. Sue is a helicopter pilot. She flies from point A, to point B, then to point C, and finally back to point A. Assume that she flies at a constant speed of 80 miles per hour on each leg of the round trip, with no stopping time in between. Let $d(t)$ be the distance she is from point A after t hours, where $t = 0$ corresponds to the time when she left point A.

Do each of the following.

1. Make a table giving t and $d(t)$ at one-half hour intervals from $t = 0$ until $t = k$, where $t = k$ corresponds to the time when Sue arrives back at point A. (Hint $d(0) = 0$ and $d(k) = 0$.)
2. Determine the domain and the range of function d .
3. Graph the function over its entire domain.
4. Write an equation giving $d(t)$ as a function of t for each leg of the round trip. (You will have three different equations.)