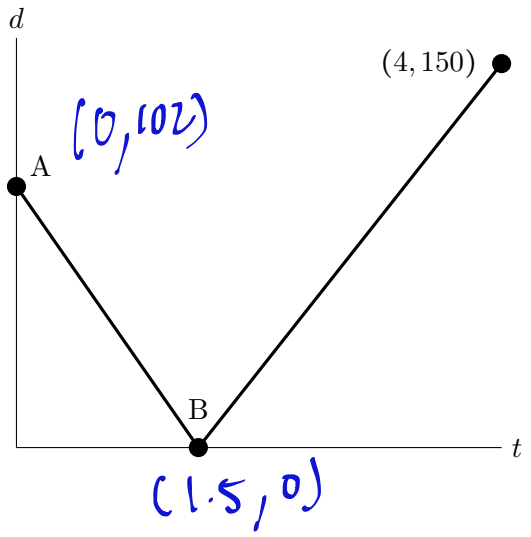
6. [9 points] The typical driving route from Ann Arbor to Chicago passes through the city of Kalamazoo. When UM students Elena and Victor recently drove from Ann Arbor home to Chicago, they began their drive traveling at a constant speed. As they passed Kalamazoo, they switched to a different constant speed for the rest of their trip.

Let $d = k(t)$ be Elena's and Victor's distance from Kalamazoo, in miles, t hours after beginning the trip. Part of the graph of $k(t)$, and part of the formula for $k(t)$, are given below.



$$k(t) = \begin{cases} 102 - 68t & 0 \le t < 1.5 \\ 60(t - 1.5) & \mathbf{1.5} \le t \le \mathbf{4} \end{cases}$$

a. [2 points] On the graph above, clearly label the points A and B with their (t, d) coordinates.

See above

b. [3 points] Fill in the missing parts of the formula for $k(t)$ given above. (It should match the graph of the function given.)

c. [4 points] Use the information given in this problem to answer the following.

How many miles is it from Ann Arbor to Kalamazoo?

Answer: **102**

How many hours does it take Elena and Victor to drive from Kalamazoo to Chicago?

Answer: **2.5**

At what speed is their car traveling between Ann Arbor and Kalamazoo? *Include units.*

Answer: **68 mph**