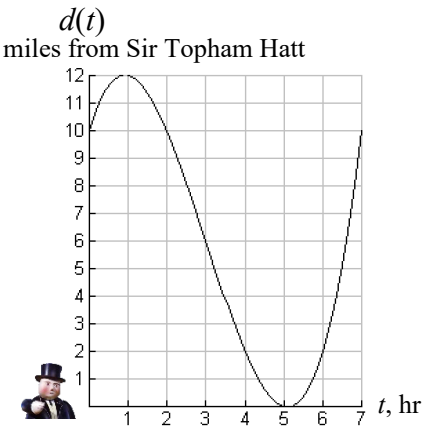
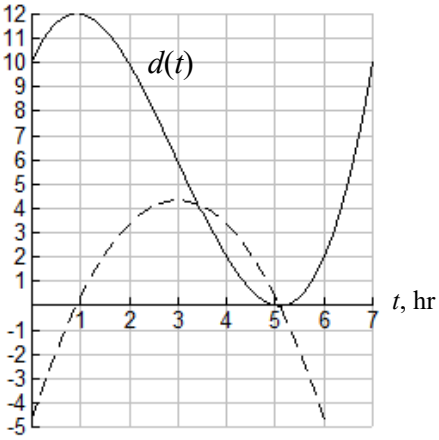
The Velocity of Thomas the Tank Engine

Thomas the Tank Engine is $d = f(t)$ miles from his boss Sir Topham Hatt III, where t is given in hours. The graph of $d = f(t)$ is shown for $0 \le t \le 7$.
The derivative, $d'(t)$ is Thomas' instantaneous velocity $v(t)$ at time t.
Recall $d'(t)$ also gives Thomas' trajectory of movement.



1. If Thomas travels in a straight line, what does his trip look like? (Use an arm motion.)

2. Which of the following (dashed) graphs below is the velocity $v(t) = d'(t)$ of Thomas? Select one. Explain your reasoning.

A.


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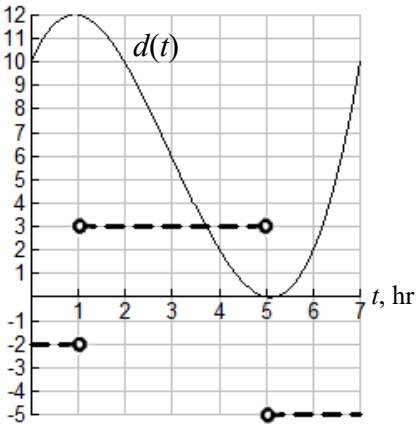
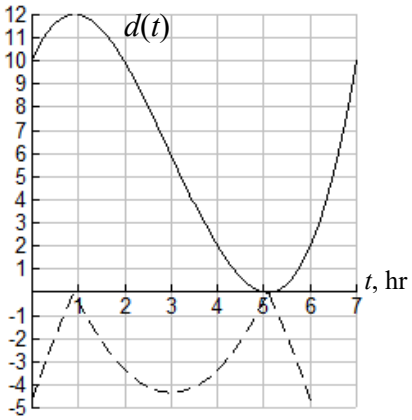
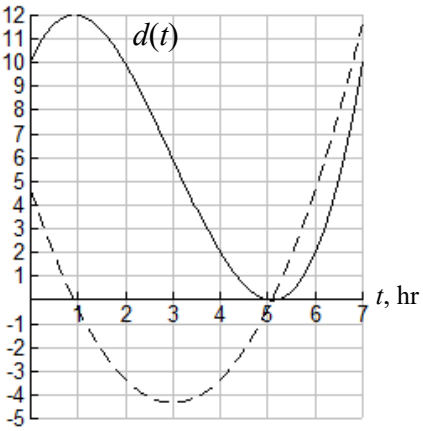
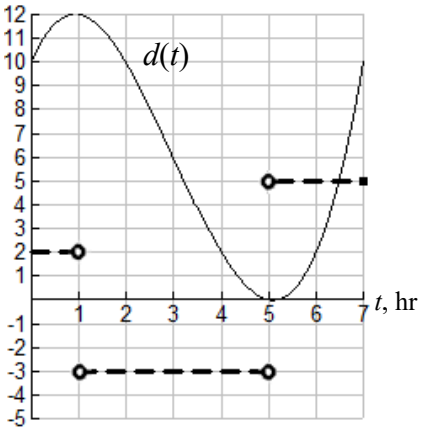
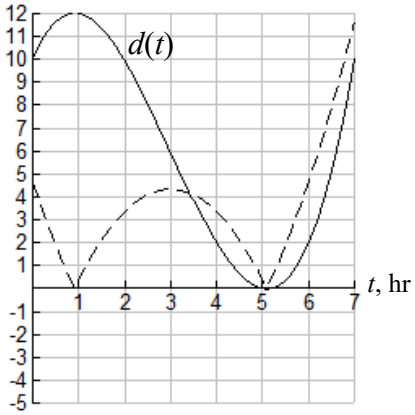


C.


D.


E.


F.


3. Interpret what the dashed graph in Choice F represents in the context of Thomas' trip.

4. On the interval for $0 \le t \le 7$, when is Thomas traveling the fastest? At what mile marker is he when traveling fastest?