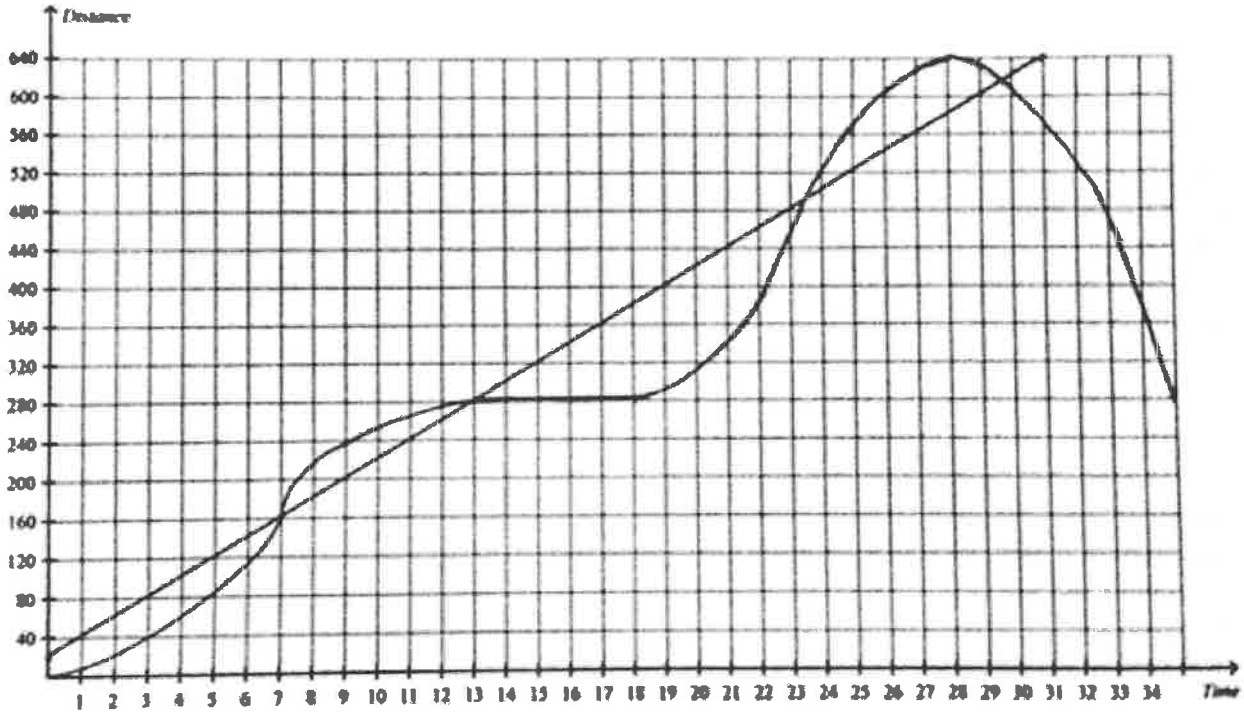
Truck and Bike Task

A bicycle traveling at a steady rate and a truck are moving along a road. The graph below shows their positions in feet from the start of the road as a function of time in seconds. Let B(t) represent the bicycle's distance and K(t) represent the truck's distance.



1. Label the graphs appropriately with B(t) and K(t). Explain how you made your decision.

2. Describe the movement of the vehicles. Explain how you used the values of B(t) and K(t) to make decisions about your description.

3. Jack claims that the average rate of change for both the bike and the truck is the same in the first 13 seconds of travel. Do you agree or disagree? State time intervals when the bike and the truck have the same average rate of change. Explain your reasoning.

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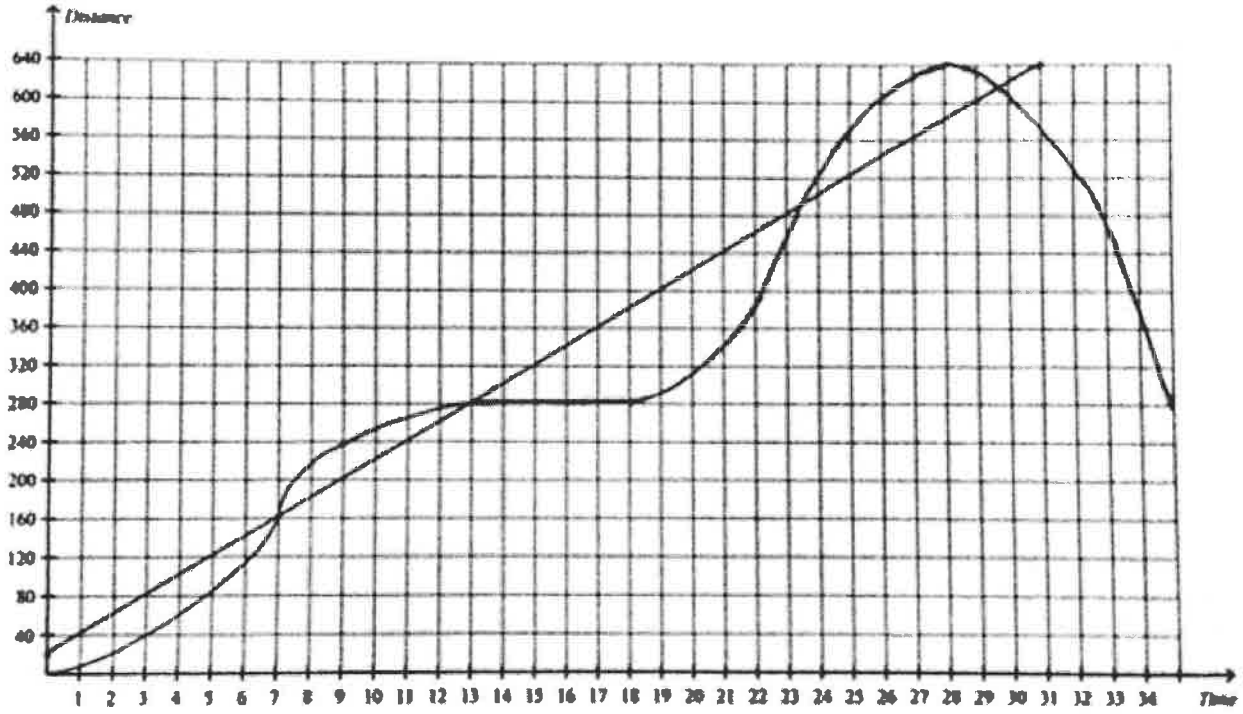

3b. Are there any time intervals on which the average rate of change of the truck is zero? Negative? What is the actual speed of the truck during those time intervals? Explain your reasoning.

4. In what 2-second interval is the magnitude of the average rate of change of the truck the greatest? Explain.

5. Inside a school zone, a policeman watched a van travel ½ of a mile in 106 seconds. Does the policeman have reason to pull the van over for speeding even though he does not have a radar gun? Why?