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1. Fazilatunnesa went on to 1.5 hour long bike trip and her position function is $p(t) = \frac{40}{3} t^2$ and in 20 miles of trip she saw a speed limit sign, 25 MPH. Find his final velocity. Did she break the law? Construct a diagram, displacement vs. time graph, velocity vs. time graph and acceleration vs. time graph.

Big Idea

2. The area under the velocity vs. time graph is her total displacement. Construct a VT graph. Shade the area under the curve and find the area (total displacement) seven different ways.

Construct VT graph	First method	2nd method	3rd method
4th method	5th method	6th method	7th method

Exit Slip:

3. Use the Limit definition of derivative to find instantaneous velocity exactly at the speed limit sign to verify whether she broke the law?