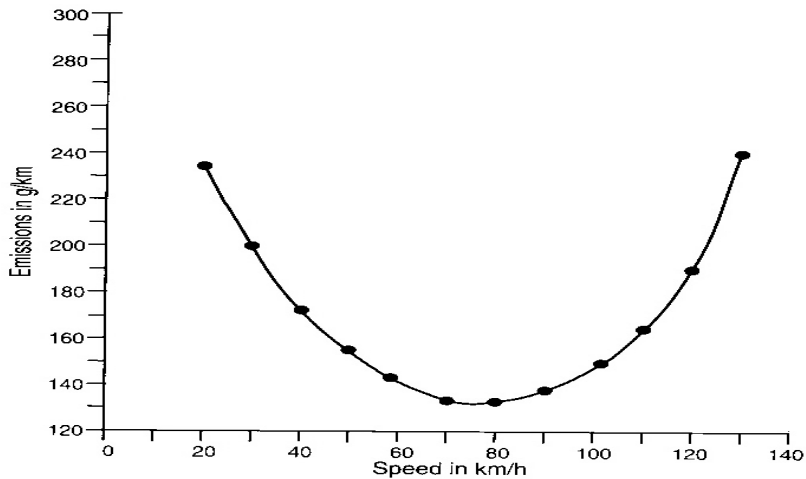


- ④ Look at the graph below, which is drawn from real data, and then answer the questions that follow.

How carbon dioxide emissions vary with speed for a typical car



Source: Based on data from *Gas Guzzlers and Climate Change*, Friends of the Earth, 1991

- (a) What is the best speed to travel to ensure the minimum emission of CO₂?
- (b) Estimate the emission of CO₂ at 140 km/h.
- (c) Estimate the emission when the car is idling (stationary with the engine running).
- (d) The graph shows that a given emission of CO₂ can occur at two speeds. Give the range of emissions which occur between 80 km/h (about 50 mph) and 110 km/h (about 69 mph). Write your answer in the form $a < \text{emission} < b$ but make sure you include the proper units.
- (e) If it were proposed to raise the maximum speed limit from 110 km/h to 140 km/h, what environmental arguments might be used against the proposal?
- ⑤ (a) What type of function does the curve shown represent? Is it:
- ◆ linear
 - ◆ quadratic
 - ◆ cubic?
- (b) Write down the general form of the function represented by this graph using y to represent emissions of CO₂ and x to represent speed.