

Homework: Traffic Flow

2.4, 2.7, 3.1

Hayden Atchley

12 September 2023

2.4

Over the course of 2 minutes, 5 vehicles passed a point with speeds of 30, 45, 20, 36 and 40 km/h. The flow q is given by $q = N/T$, where N is the number of vehicles and T the total time. Therefore, the flow is $q = 5/2 = 2.5$ vehicles per minute or $q = 5/2 * 60 = 150$ vehicles per hour. The time-mean speed v_t is the arithmetic mean of the spot speeds, or $v_t = 34.2$ km/h. The space-mean speed v_s is the harmonic mean of the spot speeds, or $v_s = 31.58$ km/h. The time-mean speed is greater.