**Webwork Section 5.3 #22**

**Book Problem 59**

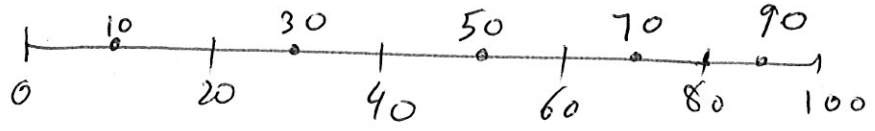
The velocity of a car was read from its speedometer at 10-second intervals and recorded in the table. Use the midpoint rule to estimate the distance traveled by the car.

| $t(s)$ | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $v(mi/h)$ | 0 | 25 | 49 | 53 | 58 | 64 | 67 | 50 | 54 | 46 | 37 |

Estimate = [ ]

Divide the interval $[0, 100]$ into 5 subintervals,

$\Delta x = \frac{100-0}{5} = 20$ sec $= \frac{20}{3600}$ hr




$$M_5 = v(10)\Delta x + v(30)\Delta x + v(50)\Delta x + v(70)\Delta x + v(90)\Delta x$$

$$= (25+53+64+50+46)\left(\frac{20}{3600}\right)$$

$$= 1.32222\ldots$$