Practice Test

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Q2: Car Share Home

given: arrive every 15 min until midnight

leave from [11:00, 11:20]

BART $\sim U(11:10, 11:30)$

let X = R.V. for time of train depart

$$f(x) = \begin{cases} \frac{1}{20}, & 11:10 \le x \le 11:30 \\ 0, & \text{otherwise} \end{cases}$$

$$E[X] = \int_X x f(x)\,dx$$

$$= \int_{-\infty}^{11:10} 0\,dx + \int_{11:10}^{11:30} x f(x)\,dx + 0$$

$$\frac{1}{40} x^2 \Big|_{10}^{30} = \frac{900}{40} - \frac{100}{40} = \frac{800}{40} = 20 \text{ min}$$

$$E[X] = 20 \text{ mins}$$