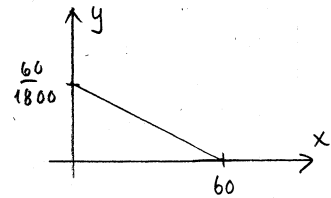


3492

Täthetsfunktion

$$f(x) = \frac{60-x}{1800} \quad 0 < x \leq 60$$



(a) Sökta arean under täthetsfunktionens graf

$$\begin{aligned} \int_0^{60} \frac{60-x}{1800} dx &= \int_0^{60} \left(\frac{60}{1800} - \frac{1}{1800}x \right) dx = \left[\frac{60x}{1800} - \frac{1}{1800} \cdot \frac{x^2}{2} \right]_0^{60} \\ &= \frac{60 \cdot 60}{1800} - \frac{1}{1800} \cdot \frac{60^2}{2} - 0 \\ &= 2 - 1 = 1 \quad \square \end{aligned}$$

(b) Sökta sannolikheten

$$P(4 \leq x \leq 10) = \int_4^{10} \frac{60-x}{1800} dx = \left\{ \begin{array}{l} \text{Räknavaren} \\ \text{OPTN F4 F4} \\ \text{Calc } \int dx \end{array} \right\} \approx 0,177$$

Svar: 18%

(c) Sökta sannolikheten

$$P(0 \leq x \leq k) = \int_0^k \frac{60-x}{1800} dx = \int_0^k \left(\frac{60}{1800} - \frac{1}{1800}x \right) dx$$

$$\frac{60}{1800} = \frac{1}{30}$$

$$\begin{aligned} &= \left[\frac{1}{30}x - \frac{1}{1800} \frac{x^2}{2} \right]_0^k = \left[\frac{x}{30} - \frac{x^2}{3600} \right]_0^k \\ &= \frac{k}{30} - \frac{k^2}{3600} - 0 \end{aligned}$$

$$\underline{\text{Svar}}: P(x < k) = \frac{k}{30} - \frac{k^2}{3600}$$