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Estatística e Probabilidade

Semana 14

01. a) $P(9 < T \leq 12) = \int_9^{12} f(t)\,dt = \int_9^{10} \frac{1}{40}(t-4)\,dt + \int_{10}^{12} \frac{3}{20}\,dt$

$= \left(\frac{t^2}{80} - \frac{4t}{40}\right)\Big|_9^{10} + \frac{3t}{20}\Big|_{10}^{12} = \frac{7}{16}$

b) $P(T \geq 7 \mid T \geq 3) = \frac{P[(T \geq 7) \cap (T \geq 3)]}{P(T \geq 3)} = \frac{P(T \geq 7)}{P(T \geq 3)}$

$P(T \geq 7) = P(T > 7) = \int_7^{\infty} f(x)\,dx = \int_7^{10} \frac{1}{40}(t-4)\,dt = \frac{1}{40}\int_7^{10}(t-4)\,dt =$

$\frac{1}{40}\left(\int_7^{10} t\,dt - \int_7^{10} 4\,dt\right) = \frac{27}{80} = 0,3375$

$P(T \geq 3) = P(T > 3) = \int_3^{\infty} f(x)\,dx = \int_3^{10} \frac{1}{40}(t-40)\,dt = \frac{1}{40}\int_4^{10}(t-4)\,dt$

$\frac{1}{40}\left(\int_3^{10} t\,dt - \int_3^{10} 4\,dt = \frac{7}{16} = 0,4375\right.$

Logo, $\frac{P(T \geq 7)}{P(T \geq 3)} = \frac{0,3375}{0,4375} \approx 0,7714.$