

תרגיל מס. 2.

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שאלה 1 1

$$\begin{aligned}P(Z < 2.11) &= 0.9357 \\P(Z > 2.11) &= 1 - 0.9357 = 0.0643 \\P(Z > -1.68) &= 1 - 0.9535 = 0.0465 \\P(1.5 < Z < 2.11) &= 0.9826 - 0.9332 = 0.0494 \\P(0.5 < Z < 2.7) &= 0.9965 - 0.6179 = 0.3786\end{aligned}$$

שאלה 2 2

$$\begin{aligned}P(Z < t) &= 0.9049 \\t &= 1.31\end{aligned}$$

$$\begin{aligned}P(z < t) &= 0.2877 \\P(z < -t) &= 0.7123 \\-t &= 0.56 \\t &= -0.56\end{aligned}$$

$$\begin{aligned}P(-t < Z < t) &= 0.9854 \\P(z < t) - P(z < -t) &= 0.9854 \\P(z < t) - (1 - P(z < t)) &= 0.9854 \\P(z < t) - 1 + P(z < t) &= 0.9854 \\2P(z < t) &= 1.9854 \\P(z < t) &= 0.9927 \\t &= 2.44\end{aligned}$$

שאלה 3

$$X \sim N(180, 17^2)$$

$$\begin{aligned} P(X > 200) &= 1 - P(X < 200) \\ &= 1 - P\left(Z < \frac{200 - \mu}{\sigma}\right) \\ &= 1 - P\left(Z < \frac{200 - 180}{17}\right) \\ &= 1 - P(Z < 1.17) \\ &= 1 - 0.8790 \\ P(X < 150) &= P\left(Z < \frac{150 - 180}{17}\right) \\ &= P(Z < -1.76) \\ &= 1 - P(Z < 1.76) \\ &= 1 - 0.9686 \\ &= 0.0314 \\ P(X < t) &= 70\% \\ \frac{t - 180}{17} &= 0.525 \\ t &= 188.925 \\ P(X < t) &= 90\% \\ \frac{t - 180}{17} &= 1.38 \\ t &= 203.46 \end{aligned}$$

שאלה 4

$$\begin{aligned} P(x < 8) &< 0.9671 \\ P(x > 6) &> 0.6736 \\ P\left(z < \frac{8 - \mu}{\sigma}\right) &< 0.9671 \\ 1 - P\left(x < \frac{6 - \mu}{\sigma}\right) &> 0.6736 \\ \frac{8 - \mu}{\sigma} &< 1.885 \\ P\left(x < \frac{6 - \mu}{\sigma}\right) &> 0.3264 \\ \frac{8 - \mu}{\sigma} &< 1.885 \end{aligned}$$

$$P\left(x < -\frac{6-\mu}{\sigma}\right) > 0.6836$$

$$\frac{6-\mu}{\sigma} > -0.47$$