Question #12774

Let X be a random variable having normal distribution with mean 48 and standard deviation 10. Then find $P(X \leq 41)$.

Solution.

Denote by Y a random variable that has standard normal distribution $Y \sim N(0, 1)$.

One has $P(X \leq 41) = P(\dfrac{X - 48}{10} \leq \dfrac{41 - 48}{10}) \approx P(Y \leq -0.7) = \Phi(-0.7)$, where $\Phi()$ stands here for the distribution function of standard normal distribution. The last approximately equals 0.24.

Answer. 0.24.

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