

Answer on Question #48712 – Math – Statistics and Probability

Waiting times at a doctor office are normally distributed with a mean of 35 minutes, and a standard deviation of 10 minutes. What is the chance a patient would have to wait over 50 minutes?

Solution

The data gives

$$\mu = 35, \sigma = 10.$$

The chance a patient would have to wait over 50 minutes is

$$P(X > 50) = P(z > z_0),$$

where

$$z_0 = \frac{50 - \mu}{\sigma} = \frac{50 - 35}{10} = 1.5.$$

So,

$P(X > 50) = P(z > 1.5) = 1 - P(z \leq 1.5) = 1 - \Phi(1.5) = 1 - 0.9332 = 0.0668$, where Φ is cumulative distribution function of standard normal distribution.

Answer: 6.68%.