

Answer on Question #44397 – Math - Statistics and Probability

Problem.

The weight of new born babies is normally distributed with a mean of 3.3Kg and a standard deviation of 1.2 Kg. Find the percentage of new born babies between 2 kg and 4 kg

Solution.

The weight of new born babies is normally distributed with a mean of $\mu = 3.3$ Kg and a standard deviation of $\sigma = 1.2$ Kg. The corresponding transformation formula is $Z = \frac{X - \mu}{\sigma}$. Z is standard normal variable, $Z \sim N(0,1)$. The probability that weight of new born babies is between 2 kg and 4 kg equals

$$p = P(2 < X < 4) = P\left(\frac{2 - 3.3}{1.2} < \frac{X - 3.3}{1.2} < \frac{4 - 3.3}{1.2}\right) = P\left(-\frac{13}{12} < Z < \frac{7}{12}\right) \approx \\ \approx 0.7202 - 0.1393 \approx 0.5808.$$

Therefore 58% of new born babies weight between 2 kg and 4 kg.

Answer: 58%.