

### Answer on Question #54876 – Math – Statistics and Probability

Out of 25 newborn babies of obese women, 10 weigh less than 2.5 kg. Find a 95% confidence interval for the probability that the weight of a newborn baby of an obese woman is less than 2.5 kg.

#### Solution

$$\hat{p} = \frac{10}{25} = 0.4.$$

A 95% confidence interval for the probability that the weight of a newborn baby of an obese woman is less than 2.5 kg is

$$\begin{aligned} CI &= \left( \hat{p} - z^* \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}; \hat{p} + z^* \sqrt{\frac{\hat{p}(1 - \hat{p})}{n}} \right) = \left( 0.4 - 1.96 \sqrt{\frac{0.4(1 - 0.4)}{25}}; 0.4 + 1.96 \sqrt{\frac{0.4(1 - 0.4)}{25}} \right) \\ &= (0.2080; 0.5920). \end{aligned}$$