Answer on Question #67660 – Math – Statistics and Probability

Question

Just before a referendum on a school budget, a local newspaper polls 373 voters to predict whether the budget will pass. Suppose the budget has the support of 53% of the voters. What is the probability that the newspaper's sample will lead it to predict defeat?

Solution

$\mu_p = 0.53$;

$\sigma = \sqrt{\dfrac{p(1-p)}{n}} = \sqrt{\dfrac{0.53*0.47}{373}} = 0.0258$.

$P(\hat{p} > 0.5) = P\left(Z > \dfrac{X-\mu_p}{\sigma}\right) = P\left(Z > \dfrac{0.5-0.53}{0.0258}\right) = P(Z > -1.16) =$

$= 1 - P(Z < -1.16) = 0.8775$.

Answer: 0.8775.