**Answer on Question #38851, Math, Statistics and Probability**

A firm has the following rules: When a worker comes late there is ¼ chance that he is caught. First time he is given a warning. Second time he is dismissed. What is the probability that a worker is late three times is not dismissed?

**Solution**

For this task we will use the Bernoulli trials formula.

Let the event when worker is caught be defined as success and when he isn't caught as a failure. The probability of success is ¼. Thus the probability of failure is ¾. We need to find the following probability

$$P(k \leq 1) = P(0) + P(1) = \binom{0}{3}\left(\frac{1}{4}\right)^0\left(\frac{3}{4}\right)^3 + \binom{1}{3}\left(\frac{1}{4}\right)^1\left(\frac{3}{4}\right)^2 = \frac{27}{64} + \frac{27}{64} = \frac{54}{64}.$$

**Answer:** $\mathbf{\frac{54}{64}}$.