Answer on question 39189 – Math – Probability

Software filters rely heavily on “blacklists” (lists of known “phishing” URLs) to detect fraudulent e-mails. But such filters typically catch only 15 percent of phishing URLs. Jason receives 10 phishing e-mails.

(a)

What is the expected number that would be caught by such a filter? (Round your answer to the next whole number.)

Expected number

(b)

What is the chance that such a filter would detect none of them? (Round your answer to 5 decimal places.)

Probability

Solution

(a) The expected number of phishing URLs is equal to mathematical expectation. In this case we have binomial distribution with 10 trials and probability of success is 0.15. Therefore, the expected number is 10*0.15=1.5≈2.

(b) The probability that 10 e-mails are not detect is

$$P_{10}(k=0) = p^0 * (1-p)^{10} = 0.85^{10} \approx 0.19687.$$

Answer: (a) 2; (b) 0.19687.