

## Answer on Question #58716 – Math – Statistics and Probability

### Question

Software filters rely heavily on “blacklists” (lists of known “phishing” URLs) to detect fraudulent e-mails. But such filters typically catch only 33 percent of phishing URLs. Jason receives 23 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.)

**(b)**

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

### Solution

**(a)** Expected number is  $E = 23 * 0.33 = 7.59 \approx 8$ .

**(b)** Probability that such a filter would detect none of them is

$$P(x = 0) = (1 - 0.33)^{23} = 0.00010.$$

**Answer: (a)**  $7.59 \approx 8$ ; **(b)**  $0.00010$ .