Answer on Question #65181 – Math – Statistics and Probability

Question

If a multiple choice test consist of 5 questions each with 4 possible answers of which only one is correct,
  (a) How many different ways can a student check off one answer to each question?
  (b) How many ways can a student check off one answer to each question and get all the questions wrong?

Solution

  (a) For each question a student has 4 possible ways to check off. Then for 5 questions a student has $4^5 = 1024$ ways to check off answers.

(b) There are 3 wrong answers to each question. Then a student can choose wrong answer to the first question in 3 ways, to the second one in 3 ways and so on. So a student can check off one answer to each question and get all the questions wrong in $3^5 = 243$ ways.

Answer: (a) 1024; **(b)** 243.