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Counting discrete math

There are 67 math majors and 124 ITEC majors at a college. In how many ways can two representatives be picked so that one is a math major and one is an ITEC major? In how many ways can one representative be picked who is either a math major or an ITEC major? A multiple-choice test contains 20 questions, and each question has four choices. In how many ways can a student answer all of the questions on the test? In how many ways can a student answer all of the questions if she is allowed to leave some blank? How many different three-letter initials can a person have? How many different three-letter initials end with "R"? How many bit strings are there of length five? How many bit strings are there of length five that begin and end with 1? How many bit strings are there of length less than \(n\), where \(n\) is a positive integer, that start and end with 1? How many license plates can be made using three digits followed by four uppercase English letters if: Digits and letters can be repeated? Digits and letters cannot be repeated? If each student in Discrete Mathematics is a mathematics major, an ITEC major, or a double major, and a class has 5 math majors (including double majors), 23 ITEC majors (including double majors), and 7 double majors, how many students are in the class? Suppose a computer system requires a password of length no less than 7 and no more than 10 characters, and each character must be an English lowercase letter, an English uppercase letter, a digit, or one of six special characters (*, >, ,