Answer on Question #83465 – Math – Statistics and Probability

Question

The probability of a student passing the lab test is 0.35. Two students are randomly selected to observe whether they can pass the test or not,

(i) Draw a tree diagram to illustrate the above event.

(ii) Calculate the probability that at least one person passes the test.

Solution

p = 0.35, n = 2.

(i) A tree diagram to illustrate the above event is shown below.

Test (possible events):

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p = 0.65^2 p = 2*0.35*0.65 p = 2*0.35*0.65 p = 0.35^2

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1) both fail 2) 1 passes, 2 fails 3) 1 fails, 2 passes 4) both pass

(ii) The probability that at least one person passes the test is given by.

P2(k>=1) = 1 - P2(k = 0) = 1 - C(0;2)*0.35^0*(1 - 0.35)^2 = 1 - 0.65^2 = 0.5775.