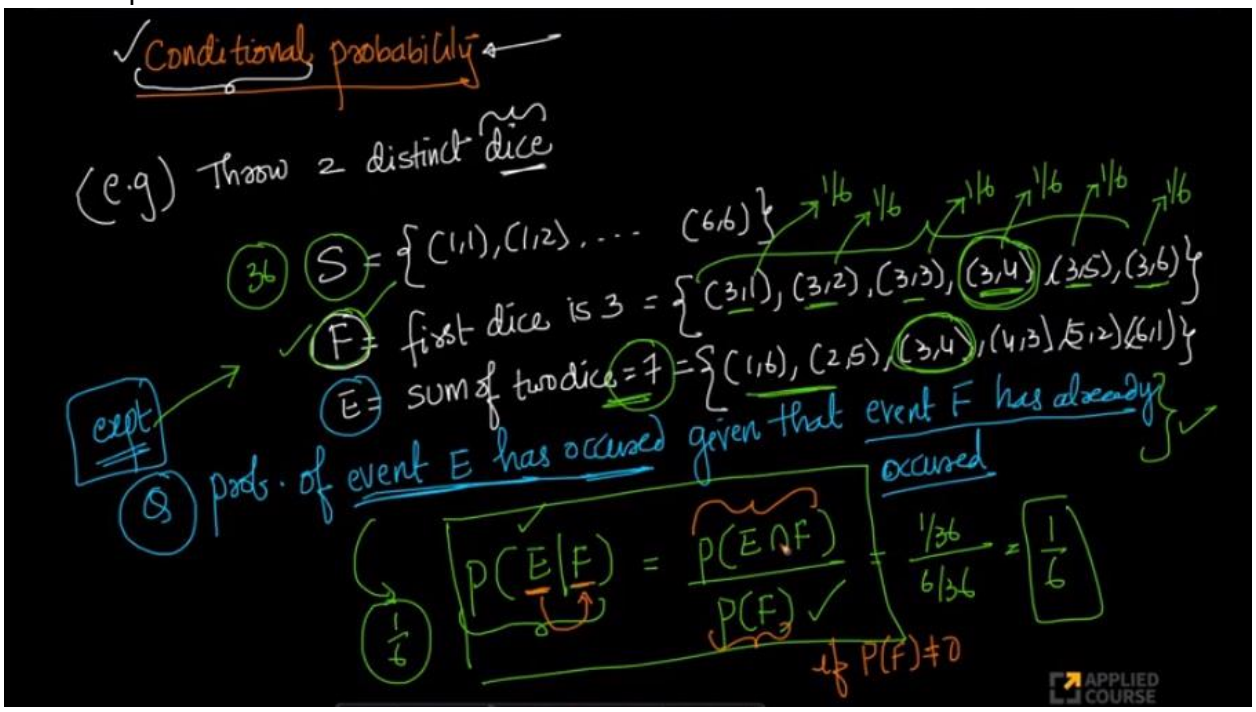
# 21.6 Conditional Probability & Examples

Timestamp




Let's try to understand conditional probability using an example

- Consider an experiment of throwing 2 dice, we haveSample space
  S= {(1,1), (1,2).....(6,6)}
- Let's say
  Event F where we get 3 on the first dice - {(3,1), (3,2), (3,4), (3,3), (3,5), (3,6)}
  Event E where sum of two dice is 7 - {(1,6), (2,5), (3,4), (4,3), (5,2), (6,1)}

Now we can find probability of event E given that event F has already occurred using conditional probability

***P(E|F) = P(E ∩ f)/P(F)*** as shown above

Conditioned on the fact that F has already occurred the probability of event E occurring will be given by ***P (E∩ f)/P(F)*** and probability holds only when ***P(F)*** ≠ 0.

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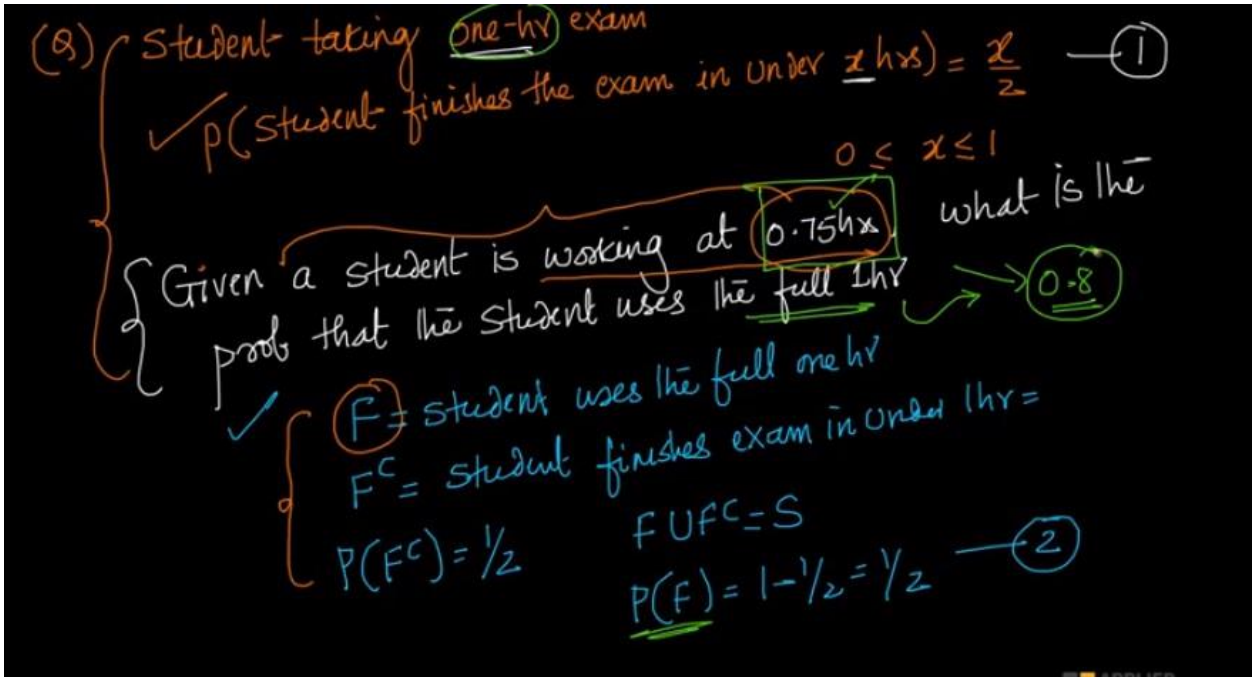


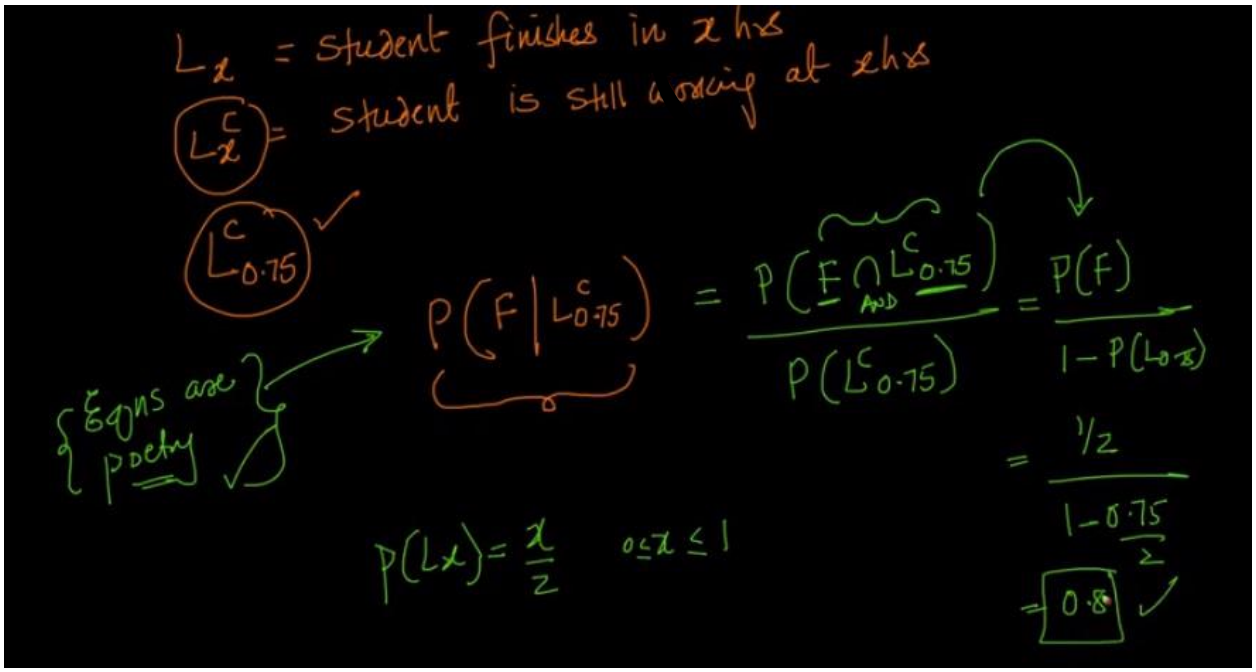


Consider the above example where a student is taking one hour exam.

- Given probability that student finishes the exam in under xhrs=x/2
- Given a student is working at 0.75 hrs We need to find the probability that the student uses full hour.

We can solve the problem as shown above using conditional probability.