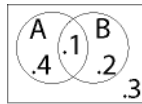


## Exam 3 Practice Problems

### Part 2 – Conditional Probability

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- Given  $P(E) = 0.4$ ,  $P(F) = 0.2$  and  $P(E \cup F) = 0.5$ ,
  - Are  $E$  and  $F$  independent?
  - Are  $E$  and  $F$  mutually exclusive?



- Find  $P(B^c | A)$  from the Venn diagram:

- Urn A has 3 blue and 4 green balls. Urn B has 4 blue and 3 green balls. A ball is chosen from urn A and placed in urn B. A ball is then chosen from urn B. What is the probability that the transferred ball was blue given that the ball drawn from urn B is blue?
- A company has rated 75% of its employees as satisfactory and 25% is unsatisfactory. Personnel records indicate that 90% of those rated satisfactory had previous work experience and 40% of those rated unsatisfactory had previous work experience. What is the probability that an employee with previous work experience is unsatisfactory?
- An urban area has 4 earthquake faults under it. The table below shows the probability that a particular fault will have a quake of magnitude 6 or greater in the next 20 years.

Fault	Alpha	Beta	Gamma	Delta
probability	15%	13%	9%	8%

- What is the probability that none of the faults will have a quake in the next 20 years?
  - What is the probability that exactly one of the faults will have a quake in the next 20 years?
- Two fair six-sided dice are rolled. Given that the sum shown uppermost is five, what is the probability that a 3 is shown on one of the two dice?
  - Two cards are chosen in succession from a standard deck of 52 cards. Given that the second card is a heart, what is the probability that the first card was a diamond?