



## M3-03: Observing the Complement

Part of the "Prediction and Probability" Learning Badge

Video Walkthrough: <https://discovery.cs.illinois.edu/m3-03/>

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### Probability: Two Special Cases

Listed below are two special cases where it is easier to look at the probability of the complement of the event, rather than calculate the probability directly.

1.

2.

**Puzzle #1:** What is the chance of drawing 5 cards from a deck *with replacement* and getting no hearts?

**Puzzle #2:** What is the chance of drawing 5 cards from a deck *without replacement* and getting at least one four?

**Puzzle #3:** What is the chance of drawing 5 cards from a deck *with replacement* and getting all diamonds?

**Puzzle #4:** What is the chance of drawing 5 cards from a deck *without replacement* and not getting all diamonds?

**Puzzle #5:** What is the probability of flipping a coin 10 times and not getting all heads?

**Puzzle #6:** What is the probability of rolling a fair die 4 times and getting at least one 6?