

TASK: Consider an experiment where we first toss a coin and note the outcome and then roll a six-sided die and note the outcome.

(a) Write a set of ordered pairs, such as (H, 4), that represents all outcomes for this experiment. Recall that this is called the **sample space**, generally called set S.

(b) Write a set of ordered pairs that represents the event of getting a tail and an even number. Call this set A.

(c) The complement of a set A will be all of the events in the sample space S that do not fall into set A. Write out the complement of set A, called set B.

(d) Find $P(A)$ and $P(B)$.

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- [What is a Complement?](#)
- [What does it mean to be Mutually Exclusive?](#)

EXPLORE:

1. Consider rolling a single six-sided die and recording the result. Let set A be the event of rolling a number greater than 4 and let set B be the complement of set A

(a) Find $P(A)$ and $P(B)$.

(b) What is true of the sum $P(A) + P(B)$?

2. If the probability I will draw a red marble from a bag is $\frac{3}{17}$, what is the probability that I won't draw a red marble?

3. If the probability that it will rain tomorrow is 20%, what is the probability that it won't rain tomorrow?

4. Consider the experiment of picking one of the 12 months at random.

(a) What is the value of $n(S)$?

(b) What is the value of $P(E)$?

(c) What is the probability of picking a month that does not start with the letter J?