MIT Introduction to Statistics 18.05 Reading 3 - Questions

John Hancock

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1 References and License

We are answering questions in the material from MIT OpenCourseWare course 18.05, Introduction to Probability and Statistics.
Please see the references section for detailed citation information.

We are answering the questions in [1].

2 Problem 1

You roll two dice. Consider the following events.
A = 'first die is 3'
B = 'sum is 7'
C = 'sum is greater than or equal to 7'

2.1 Compute $P(B)$; Dice Sum to 7

We are rolling two dice so the sample space, Ω, is $\{(x, y) \mid x, y \in \{1, 2, 3, 4, 5, 6\}\}$
Then B is $\{(x, y) \in \Omega \mid x + y = 7\}$.
Therefore by inspection $B = \{(1, 6), (6, 1), (5, 2), (2, 5), (3, 4), (4, 3)\}$
There are 36 sequences of integers (x, y) for $(x, y) \in \{1, 2, 3, 4, 5, 6\}$. There are 6 elements in B, so $P(B) = \frac{6}{36} \approx 0.1667$.

References

[1] Jeremy Orloff and Jonathan Bloom. *Reading Questions 3*. https://ocw.mit.edu/courses/mathema
05-introduction-to-probability-and-statistics-spring-2014/readings/reading-
questions-3/.