4.3: Expected Value

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> **Definition:** (Expected Value) The expected value of a random variable X is the the weighted average of the possible values X can take on, or in other words,
> $$E[X] = \sum_{x \mid p(x) > 0} x p(x)$$

> **Example:** If our random variable is the sum of two six-sided die rolls, then the expected value is 7.