Geometric Distribution

Colby Community College

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The events `success` and `failure` are complements.

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Note

`success` and `failure` are not moral descriptions. We could have just as easily labeled the universal donors as `failure`.

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Bernoulli Random Variable

If X is a random variable that takes value 1 with probability p and 0 with probability $q = 1 - p$, then X is a Bernoulli random variable with mean and standard deviation:

$$\mu = p \qquad \sigma = \sqrt{p(1-p)}$$

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The standard deviation of X is:

$$\sigma = \sqrt{p(1-p)} = \sqrt{0.06(1-0.06)} = \sqrt{0.0564} = 0.237486842$$

Definition

The **geometric distribution** is used to describe how many trails it takes to observe a success.