

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Geometric Distribution

Let X count trials through the first success, so X has support $1, 2, \dots$. Assume independent trials with constant success probability and round only final probabilities.

1. Let X count trials through the first success, with $p = 9/20$. Find the mean and population variance of X .

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

2. Let X count trials through the first success, with $p = 1/4$. Find $P(X \geq 5)$, meaning at least 5 trials are required.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

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Let X count trials through the first success, so X has support $1, 2, \dots$. Assume independent trials with constant success probability and round only final probabilities.

3. Let X count trials through the first success, with $p = 11/20$. Find $P(X \leq 7)$, the first success by trial 7.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

4. Let X count trials through the first success, with $p = 3/10$. Find $P(X = 3)$.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

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Let X count trials through the first success, so X has support $1, 2, \dots$. Assume independent trials with constant success probability and round only final probabilities.

5. Let X count trials through the first success, with $p = 1/20$. Find $P(X = 2)$.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

6. Let X count trials through the first success, with $p = 17/20$. Find the mean and population variance of X .

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

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Let X count trials through the first success, so X has support $1, 2, \dots$. Assume independent trials with constant success probability and round only final probabilities.

7. Let X count trials through the first success, with $p = 3/4$. Find $P(X \geq 9)$, meaning at least 9 trials are required.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$

8. Let X count trials through the first success, with $p = 2/5$. Find $P(X \leq 6)$, the first success by trial 6.

Assumptions: Trials are independent with constant success probability; X includes the successful trial and has support $1, 2, \dots$
