 **THE TWELVE DAYS OF STATISTICS**  

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**On the first day of Statistics, my true love gave to me: A Partridge in a Pear Tree.**

If the probability of getting a partridge is 0.58 and the probability of getting a

pear tree is 0.76, and these are independent events, find the probability of

getting a partridge and a pear tree.

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**On the second day of Statistics, my true love gave to me: Two Turtle Doves.**

If the probability of a female turtle dove is 0.53, find the probability of at

least one female turtle dove in the pair.

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**On the third day of Statistics, my true love gave to me: Three French Hens.**

If the probability of a hen truly having French citizenship is 0.81, find the probability

of exactly two French hens out of the three.

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**On the fourth day of Statistics, my true love gave to me: Four Calling Birds.**

If the probability of a bird actually calling is 0.63, find the probability of finding the first calling bird on the third attempt.

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**On the fifth day of Statistics, my true love gave to me: Five Golden Rings.**

If the probability of getting a real golden ring is 0.72, find the probability of getting

three or fewer golden rings in the five.

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**On the sixth day of Statistics, my true love gave to me: Six Geese A-laying.**

If the probability of an authentic laying goose is 0.83, find the probability of getting a an authentic laying goose on or before the fourth trial.



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**On the seventh day of Statistics, my true love gave to me: Seven Swans A-swimming.**

If the probability of a swan drowning is 0.23, find the probability of exactly 4

out of the 7 swans drowning.

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**On the eighth day of Statistics, my true love gave to me: Eight Maids A-milking.**



If the probability of getting a sour maid a-milking is 0.38, find the expected number of sour maids a-milking in the group of 8.

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**On the ninth day of Statistics, my true love gave to me: Nine Ladies Dancing.**

If the probability of a dancing lady accepting an invitation to dance is 0.18, find the expected number of ladies you would have to ask before one accepts.

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**On the tenth day of Statistics, my true love gave to me: Ten Lords A-leaping.**

If the probability of a lame leaping lord is 0.24, find the probability of getting your first lame leaping lord after the sixth attempt.

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**On the eleventh day of Statistics, my true love gave to me: Eleven Pipers Piping.**

If the probability of frozen pipes is 0.63, find the probability of 8 or more frozen

pipes out of the eleven.

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**On the twelfth day of Statistics, my true love gave to me: Twelve Drummers Drumming.**

If the probability of a dribbling drummer is 0.48, find the standard deviation

of the dribbling drummers drumming for twelve drummers drumming.

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**ANSWERS for Twelve Days of Statistics**

1. P(partridge and pear tree) = P(partridge) x P(pear tree) = (0.58)(0.76) = 0.441

2. P(x ≥1) = 1 – P(x = 0) = 1 – (0.47)2 = 0.779

3. P(x = 2) = binompdf(3,0.81,2) = 0.374

4. P(x = 3) = geometpdf(0.63,3) = 0.0862

5. P(x ≤ 3) = binomcdf(5,0.72,3) = 0.430

6. P(x ≤ 4) = geometcdf(0.83,4) = 0.999

7. P(x = 4) = binompdf(7,0.23,4) = 0.0447

8. Binomial: μ = np = 8(0.38) = 3.04

9. Geometric: μ = 1/p = 1/0.18 = 5.56

10. P(x > 6) = 1 – geometcdf(0.24,6) = 0.193

11. P(x ≥ 8) = 1 – binomcdf(11,0.63,7) = 0.371

12. Binomial: σ = √np(1 – p) = √12(0.48)(0.52) = 1.73