

Test 2 on Friday, 3/12 : Chapters 3 and 4

3x5 notecard

Mean, Variance, and Standard Deviation of the Binomial Distribution

example: Toss a coin 4 times. Let X = the number of heads.

How many heads, on average, would you expect?

| X | $P(X=x)$ |
|-----|----------|
| 0 | — |
| 1 | — |
| 2 | — |
| 3 | — |
| 4 | — |

mean = $\mu = np = 4 \cdot (0.5) = 2$

standard deviation = $\sqrt{npq} = \sqrt{4 \cdot (0.5)(0.5)} = 1$

variance = $npq = 4 \cdot (0.5)(0.5) = 1$

example: In a town, 36% of voters favor a given ballot measure. For groups of 30 voters, find the mean, variance, and standard deviation for the number who favor the measure.

$n = 30$ success = favor

$p = 0.36$

$\mu = np = (30)(0.36) = 10.8$

$\sigma^2 = npq = (30)(0.36)(0.64) = 6.91$

$\sigma = \sqrt{6.91} = 2.63$