

Binomial problems: Mean and standard deviation

Problem Explanation

Show Another

Binomial problems: Mean and standard deviation

QUESTION

A machine that manufactures automobile pistons is estimated to produce a defective piston 1% of the time. Suppose that this estimate is correct and that a random sample of 80 pistons produced by this machine is taken.

- Estimate the number of pistons in the sample that are defective by giving the mean of the relevant distribution (that is, the expectation of the relevant random variable). Do not round your response.
- Quantify the uncertainty of your estimate by giving the standard deviation of the distribution. Round your response to at least three decimal places.

(If necessary, consult a list of formulas.)

$$\mu = np$$

$$\mu = 80(.01)$$

$$\textcircled{a} \mu = 0.8$$

$$\sigma = \sqrt{npq}$$

$$\sigma = \sqrt{80(.01)(.99)}$$

$$\sigma = \sqrt{6.792}$$

$$\sigma = 0.8899438$$

$$\sigma = 0.890$$

$$n = 80$$

$$p = .01$$

$$q = 1 - p = 1 - .01 = .99$$

	A	B	C
1	What you are finding	Answer	Formula
2			
3	n	80	Type in from problem
4	p	0.01	Type in from problem (as decimal)
5	q	0.99	=1-B4
6			
7	Mean	0.8	=B3*B4
8	Standard Deviation	0.8899438185	=sqrt(B3*B4*B5)

Tags Archive RSS feed Youtube QR Code email akennon@fscj.edu with any issues on this website

Made with Montaigne and bigmission