

# Math 373 Hw 13 Recommended problems, don't turn this in.

Hw 282: 8.3', 8.5', 8.7', 8.9', 8.12, 8.16. Rec 282: 8.3, 8.5, 8.7, 8.9, 8.11, 8.17.

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8.3 Find the margin of error in estimating a population mean  $\mu$ .

(a)  $n = 30, \sigma^2 = .2$  ME = .160

(b)  $n = 30, \sigma^2 = .9$  ME = .339

(c)  $n = 30, \sigma^2 = 1.5$  ME = .438

8.5 Find the margin of error.

(a)  $n = 50, s^2 = 4$  ME = .55

(b)  $n = 500, s^2 = 4$  ME = .18

(c)  $n = 5000, s^2 = 4$  ME = .055

8.7 Find the margin of error for estimating a binomial proportion. Use  $p = .5$  to find the standard error of the estimator.

(a)  $n = 30$  ME = .18

(b)  $n = 100$  ME = .098

(c)  $n = 400$  ME = .049

8.9 Find the margin of error for estimating a binomial proportion using samples of size  $n = 100$  and the given estimated values of  $p$ .

(a)  $p = .1$  ME = .059

(c)  $p = .5$  ME = .098

(e)  $p = .9$  ME = .059

8.11 A random sample of  $n = 900$  observations from a binomial population produced  $x = 655$  successes. Estimate the binomial proportion  $p$  and calculate the margin of error.

$$\hat{p} = .73$$

$$ME = .029$$

8.17 In a survey of 1000 adults, 78% felt sports had a positive effect on society.

(a) Estimate of the proportion of adults who feel sports have a positive effect.

$$\hat{p} = .78$$

(a') Find the margin of error.

$$ME = .026$$

(b) A magazine reports that in a separate poll of 1000 adults has a margin of error of 3.1%. What value of  $p$  produces this margin of error.

Hint: Set the formula for the margin of error equal to .031 and then use the quadratic formula to solve for  $p$ .

$$p = .5$$