

5-4 Binomial Distributions

$$\mu = np$$

$$\sigma^2 = npq$$

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

$\mu - 2\sigma$ Minimum usual value

$\mu + 2\sigma$ Maximum usual value

p 230

$$n = 5$$

$$p = .75$$

$$q = .25$$

1-p

$$\mu = np$$

$$\mu = 5(.75)$$

$$\mu = 3.75$$

$$\sigma^2 = npq$$

$$\sigma^2 = 5(.75)(.25)$$

$$\sigma^2 = .9375$$

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

$$\sigma = .968$$

p232

$$b. \quad n = 152$$

$$p = .5$$

$$q = .5$$

$$\mu = np$$

$$\mu = 152(p)$$

$$\mu = 76$$

$$\sigma = \sqrt{152(.5)(.5)}$$

$$\sigma = 6.2$$

$$76 \pm 12.4$$

$$88.4 \quad \text{Max}$$

$$63.6 \quad \text{Min}$$

$$10. \quad n = 100$$
$$p = .2 \quad \frac{1}{5}$$
$$q = .8 \quad \frac{4}{5}$$

$$\mu = 100(.2)$$

$$\mu = 20$$

$$\sigma = \sqrt{100(.2)(.8)}$$

$$\sigma = \sqrt{16}$$

$$\sigma = 4$$

$$\mu \pm 2\sigma$$

$$20 \pm 8$$

$$12 \quad 28$$