8.56

a) $\alpha = .02$

$z_{\alpha/2} = 2.33$

98% CI for p:

$$\left(0.45 \pm 2.33\sqrt{\frac{0.45 \times 0.55}{900}}\right)$$

$$= (0.409, 0.491)$$

b) No. Not enough evidence to show the majority say that movies are getting better.

8.97

a)

$$P\left(\chi^2_{1-\alpha} \le \frac{(n-1)S^2}{\sigma^2}\right) = 1-\alpha$$

$$\Rightarrow \sigma^2 \le \frac{(n-1)S^2}{\chi^2_{1-\alpha}}$$

b). similar to a)

$$\sigma^2 \ge \frac{(n-1)S^2}{\chi^2_{\alpha}}$$

8.99.

a) $\sigma \le \sqrt{\frac{n-1}{\chi^2_{1-\alpha}}} \cdot S$

b) $\sigma \ge \sqrt{\frac{n-1}{\chi^2_{\alpha}}} \cdot S$