

Econ 70
Fall 2003
midterm 2

1. fail ≤ 1 $p = .2$ $n = 4$ 0.819

2. $\frac{4}{52} \cdot \frac{3}{51} = \frac{12}{2652} = 0.0045$

3. $\frac{500}{25.00} \quad \frac{40}{2.00} \quad \frac{z}{\sqrt{100}} = .2$

$P(\bar{x} > 24.80) = P(z > -1) = 0.8413$

4. $P(-0.5 \leq x \leq 1) = .1915 + .3413 = .5328$

5. $.80 \pm 1.96 \frac{(.8)(.2)}{100} \quad .80 \pm .004 \quad (.792, .808)$

6. $x \sim N(20, 2), 10x \sim N(200, 200)$

$\frac{199 - 200}{\sqrt{200}} = \frac{-1}{\sqrt{200}} = -0.0707 \quad 0.5279$

7. $x \sim N(150, 20^2) \quad \bar{x} \sim N(150, 4^2)$

$150 + 2.326(4) = 159.304$

$159.304 \times 25 = 3,982.6$

8. $H_0: p = .8 \quad P(x \leq 7 | p = .80) = P(Y \geq 3 | p = .2)$

$H_a: p = .5 \quad \geq 1 - P(Y \leq 2 | p = .2) = 1 - .678 = .322$

9. $P(x \geq 8 | p = .5) = 1 - P(x \leq 7 | p = .5) = 1 - .845 = 0.055$

10. $cov = .6(4)(6) = 14.4 \quad 4F + 2GM \sim N(80, 16.16 + 4.36 + 4 \cdot 2 \cdot 2 \cdot 14.4)$
 $= N(80, 630.4)$

11. Poisson, $\mu = 2.$

$1 - P(x \leq 1) = 1 - .4060 = 0.594$

12. $\sqrt{\frac{1000^2}{100} + \frac{1000^2}{100}} = 141.42$

$30,000 - 29,000 \pm 1.96(141.42)$

1000 ± 277.18

$(722.82, 1277.18)$