

10.2

a.

$$\{y \leq 12 | p = 0.8\}$$

b.

$$\alpha = 1 - [P(Y = 13) + \dots + P(Y = 20)] = 1 - (0.0546 + 0.1091 + 0.17456 + 0.2182 + 0.205364 + 0.136909 + 0.05765 + 0.01153) = 0.032087$$

c.

$$\{y > 12 | H_\alpha = True\}$$

d.

$$\beta = P(y > 12 | p = 0.6) = (0.16588 + 0.1244 + 0.0746 + 0.0350 + 0.0123 + 0.0031 + 0.0005 + 0.00001) = 0.41579$$

e.

$$\beta = P(y > 12 | p = 0.4) = 0.02103$$

10.6

a.

$$\alpha = P(|y - 18| \geq 4 | p = 0.5) = 1 - P(15 \leq y \leq 21 | p = 0.5) = 0.24298$$

b.

$$\beta = P(15 \leq y \leq 21 | p = 0.7) = 0.091554$$

10.20

$$\frac{62 - 64}{8/\sqrt{50}} \approx -1.77$$

10.26

$$\frac{(32/80) - 0.45}{\sqrt{(0.45)(0.55)/80}} \approx -0.898933$$

Fail to reject, no enough evidence to conclude

10.38

$$\beta = 1 - P(\bar{x} \leq 64 - 2.33 * 8/\sqrt{50} | \mu_{\alpha} = 60) = 1 - P(\bar{x} \leq 61.3639 | \mu_{\alpha} = 60) = 1 - P(Z \leq 1.21) = 0.1131$$

10.42

$$n = \frac{(2.326 + 1.645)^2 (3.1)^2}{(5.5 - 5)^2} \approx 606.15425$$

10.45

A.

$$\sqrt{\frac{0.26^2}{30} + \frac{0.22^2}{35}} \approx 0.0603$$

$$z_{\alpha/2} = 2.58$$

$$(0.22 - 2.58 * 0.06, 0.22 + 2.58 * 0.06) = (0.0652, 0.3748)$$

b.

Reject

c.

$$Z = \frac{1.65 - 1.43}{0.06} \approx 3.667$$

Conclusion reached compare with 10.21 null hypo

10.46

10.52

A.

$$Z = \frac{0.785 - 0.329}{\sqrt{0.56 * 0.44 * 2/70}} \approx 5.435$$

$$P\text{-val} = P(Z > 5.44) = 0$$

B.

Reject

10.56

a.

$$S^2 = \frac{34 * 8.41 + 34 * 1.44}{68} = 4.925$$

$$Z = \frac{6.9 - 5.8}{\sqrt{4.925 * 2/35}} = 2.074$$

$$P(Z > 2.074) \approx 0.019$$

b.

reject