

Question 1:

$$n=60$$

$$x = 15,20$$

$$p = 0.2$$

$$q = 0.8$$

$$N = 12$$

$$\sigma = 309$$

$$z_{20.5} = \frac{20.5 - 12}{3.09}$$

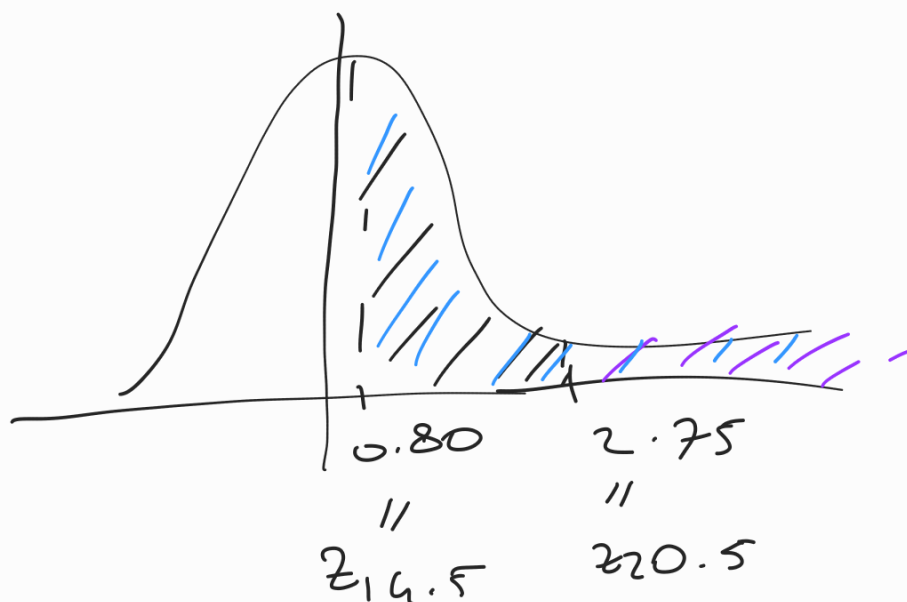
$$z_{20.5} = 2.75$$

$$z_{14.5} = \frac{14.5 - 12}{3.09}$$

$$z_{14.5} = 0.80$$

$$P_{z < 0.80} = 0.7881$$

$$P_{z < 2.75} = 0.9970$$



$$0.9970 - 0.7881 = \underline{\underline{0.2089}}$$

Q2

$$p = 0.1$$

$$q = 0.9$$

$$n = 100$$

$$x = 13, 8$$

a) exceeds 13 :

$$z_{13}$$

$$\mu = 10$$

$$\sigma = 3$$

$$z_{13.5} = \frac{13.5 - 10}{3} = 1.16$$

$$P_{z_{13.5}} = 0.8770$$

$$1 - 0.8770$$

$$= 0.123$$

b) is less than 8

$$z_{7.5} = \frac{7.5 - 10}{3} = -0.83$$

$$P_{z(7.5)} = 0.2061 //$$

Q3)

$$p = \frac{1}{6}$$

$$q = \frac{5}{6}$$

$$n = 180$$

$$x = 36 \Rightarrow x > 36$$

$$\underline{36.5}$$

$$N = np$$

$$= 30$$

$$\sigma = 5$$

$$z_{36.5} = \frac{36.5 - 30}{5}$$

$$z_{36.5} = 1.3 //$$

$$P_{z(36.5)} = 0.9032 //$$