

## Quiz 5 MATH 1550 Fall 2018

Consider binomial distribution with  $n=5$  and  $p=0.2$ .

a) Find  $q$

Soln b) Find  $P(x=1 \text{ or } x=2)$

Solution: a)  $q = 1 - p = 1 - 0.2 = 0.8$

b) The distribution function is

$$P(x) = \frac{5!}{(5-x)!x!} (0.2)^x (0.8)^{5-x}$$

so

$$P(x=1 \text{ or } x=2) = P(x=1) + P(x=2)$$

$$= \frac{5!}{4!1!} (0.2)^1 (0.8)^4 + \frac{5!}{2!3!} (0.2)^2 (0.8)^3$$

$$= 0.6144$$

Hence,

$$\vec{d} = \langle -4, 0, 0 \rangle - \langle -1, 0, 0 \rangle$$

$$= \langle -3, 0, 0 \rangle$$

Thus,

$$\vec{r}(t) = \langle \frac{5}{2} - t, \frac{5}{2} - t, \frac{25}{6} - \frac{1}{2}t \rangle + \langle -3, 0, 0 \rangle$$

$$= \langle \frac{5}{2} - t - 3, \frac{5}{2} - t, \frac{25}{6} - \frac{1}{2}t \rangle$$