Q1(15 pts) Consider a binomial random variable with n = 8 and p = 0.7
Fill in the blank in the table below.

The problem	List values of x	Probability	Rewrite probability	Find probability
(a) 3 or more	----------	p(x -------)	----------	----------
(b) Between (3 and 5inclusive)	----------	p(---- x -----)	----------	----------
(c) Exactly 3	----------	p(x = -----)	----------	----------

Q2 (12 pts) Consider a binomial random variable with n = 25 and p = 0 .6. Fill in the blanks to find some probabilities using normal approximation.

(a)Are n.p and n.q greater than 5 ? ----------

(b) Calculate mean and standard deviation U = ---------- , = --------

(c) To find the probability of 9 or more success, calculate z applying continuity correction

(d) Calculate P(x >9) = P(z >------) = ----------

Q3 (12 pts) If X is normal distribution with mean 10 and variance 2.25 , Evaluate

(a) P(X > 8.5)

(b) P(X <12)

(c) P(9.25 < X < 11.25)

Q4 (12 pts)Scores on a trade school entrance exam exhibits the characteristics of a

normal distribution with mean and standard deviation 50 and 5 respectively.

(a) What proportion of the score on this exam would be greater than 60?
(b) What proportion of the score on this exam would be less than 45?
(c) What proportion of the score on this exam would be between 35 and 65?

Q5 (12 pts) suppose that 70% of the first class mail from New York to California is delivered with in 4 days after being mailed. If 20 pieces of first class mail were mailed from New York to California.

(a) Find the probability that at least 15 pieces of mail arrive with in four days of mailing date.
(b) Find the probability that 10 or fewer pieces of mail arrive with in four days of mailing date.

Q6 (12 pts)In a certain manufacturing plant wood grain painted 4 ft by 8 ft wall board panels are mass produced and packaged in lots of 100. Past evidence indicates that number of damaged or imperfect panels per bundle follows a Poisson distribution with mean = 2.

(a) Find the probability that there are exactly three damaged or imperfect panels in a bundle of 100.
(b) Find the probability that there are at least 2 damaged or imperfect panels in a bundle of 100.