k: 8] s toys. The probability that a toy is defective is 0.08. A random sample of d.  (a) ne expected number of defective toys.  [2] ne probability that there is at least one defective toy in the sample.  [3] that there is at least one defective toy in the sample, find the oility that there are, at most, three defective toys.  (c)
d.  ne expected number of defective toys.  [2]  ne probability that there is at least one defective toy in the sample.  [3]  (b)  that there is at least one defective toy in the sample, find the
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that there is at least one defective toy in the sample, find the [3]

## [Maximum mark: 8]

A factory makes toys. The probability that a toy is defective is 0.08. A random sample of 50 toys is tested.

Find the expected number of defective toys. (a)

- [2]
- (b) Find the probability that there is at least one defective toy in the sample.
- Given that there is at least one defective toy in the sample, find the (c) probability that there are, at most, three defective toys.
- [3] [3]

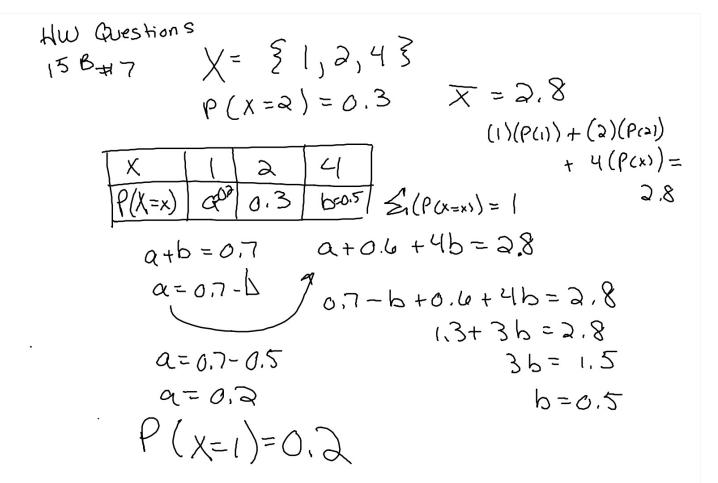
a) 
$$E(x) = np$$
  
= 50(0.08)

c) 
$$P(x \le 3 \mid x > 1) = P(1 \le x \le 3)$$

= 0.410 0.985

P(x 7,1)

= 0.416



2 If 
$$X \sim B\left(6, \frac{1}{3}\right)$$
 find to 3 significant figures

- a P(X=2)
- **b** P(X < 2)
- c  $P(X \le 2)$

d P(X ≥ 2

a) 
$$P(X=a) = binompdf(L_0, \frac{1}{3}, a) = 0.329$$

Particular #

(b) P(x <a)= binom cdf (6, 3, 2) = 6.468 0.351

c) P(x = 2) bi homed f(6, \frac{1}{3}, 2) = 0,468

d)  $P(x \ge a) = 1 - P(x < a)$ 

Cummulative

=1-0.351=0.649

EX BOX CONTAINS CARNATIONS, OF WHICH & ARE

#34 RED, THE REST WHITE. CRENATIONS ARE PICKED AT

RANDOM- HOW MANY MUST BE PICKED SO THAT

THE PROBABILITY THAT THERE IS AT LEAST ONE

RED IS AMONG THEM IS GREATER THAN 95%?

LET X B(n, 0.25)

P(X ≥ 1) = | - P(X = 0)

= (- (0.75)

Fig. 1. (3n)

1-(0.75) > 0.95

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