

1. If  $x$  is a binomial random variable with  $n = 20$  and  $p = .4$ , find the following:
    - a) the expected value and variance of  $x$
    - b)  $P(x \leq 14)$
    - c)  $P(x < 10)$
    - d)  $P(x > 6)$
    - e)  $P(x \geq 12)$
    - f)  $P(9 < x < 14)$
    - g)  $P(5 \leq x \leq 11)$
    - h)  $P(7 \leq x < 15)$
    - i)  $P(x = 9)$
  
  2. If  $x$  is a binomial random variable with  $n = 12$  and  $p = .8$ , find the following:
    - a)  $P(x \geq 10)$
    - b)  $P(x = 8)$
    - c)  $P(x < 1)$
    - d)  $P(6 < x < 9)$
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## KEY

1. a) 8, 4.8 b) .998 c) .755 d) .750 e) .057 f) .239 g) .892 h) .748 i) .159
2. a) .558 b) .133 c)  $4 \times 10^{-9}$  d) .186