

March, 05

Math 333-002, Fall 2007

Name: _____

Student ID: _____

I pledge I have not violated the NJIT Honor Code _____

Must show all work for full credit!

1 The time between the arrivals of electronic messages at your computer is exponentially distributed with a mean of 1.5 hours.

(a) What is the probability that you do not receive a message during a one-hour period? (4 pts)

X: time taken to receive the next message. Given $E(X) = 1.5 = 1/\lambda$ (from formula sheet).

(a) $P(X > 1) = \exp(-\lambda x) = \exp(-[1/1.5]1) = \exp(-2/3) = 0.5134$.

(b) If you did not receive a message in the last four hours what is the probability that you do not receive a message in the next hour?(4 pts)

(b) $P(X > 5 / X > 4) =$ (by loss of memory property) $= P(X > 1) = 0.5134$ (from (a) above).

(c) What is the expected time between your fourth and fifth message? (2 pts)

Same as $E(X) = 1.5$ hours.