- 42. An espresso stand has a single server. Customers arrive to the stand at the rate of 28 per hour according to a Poisson distribution. Service times are exponentially distributed with a service rate of 35 customers per minute. If the arrival rate remains at 28 customers per hour and the stand's manager wants to have the average time a customer spends in the system (i.e., wait time line and service time) to be a maximum of 6 minutes on average, then the service rate must
- a. decrease by 2 to 33 customers per hour
- b. decrease by 3 to 32 customers per hour
- c. increase by 3 to 38 customers per hour
- d. increase by 2 to 37 customers per hour
- (Hard)
 - 43. A machine requires a constant 40 seconds to insert a part. Parts arrive at the machine for insertion at the rate of 1 part per minute according to a Poisson distribution. The probability that the machine is busy is
 - a. 0.3333
 - b. 0.4000
 - c. 0.6667

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(Medium)
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- d. 1.0000 edium) 44. A machine requires a constant 40 seconds to a set a part. Parts arrive at the machine for insertion at the rate of N as per minute according to a Poisson distribution. The probability that the machine is rule at 0.0000 0.2333 eV 0.2333 p.2000 page 6 a. 0.0000
- 0.6667
- (Medium)
 - 45. A machine requires a constant 40 seconds to insert a part. Parts arrive at the machine for insertion at the rate of 1 part per minute according to a Poisson distribution. The average number of parts waiting for the machine is
 - a. 0.6667
 - b. 1.0000
 - c. 1.3333
 - d. 2.0000

(Medium)

- 46. A machine requires a constant 40 seconds to insert a part. Parts arrive at the machine for insertion at the rate of 1 part per minute according to a Poisson distribution. The average number of parts in the system (i.e., waiting and being inserted) is
- a. 0.6667
- b. 1.0000
- c. 1.3333

- c. decrease by 3 to 42 customers per hour
- d. decrease by 2 to 43 customers per hour

(Hard)

- 64. A service counter employs two servers. On average a server requires 8 minutes to process a customer and service times follow an exponential distribution. Customers arrive at the counter at the rate of 12 per hour according to a Poisson distribution. The service rate per server for this system is
- a. 3.75 customers per hour
- b. 7.5 customers per hour
- c. 8 customers per hour
- d. 16 customers per hour

(Medium)

- 65. A service counter employs two servers. On average a server requires 8 minutes to process a customer and service times follow an exponential distribution. Customers arrive at the counter at the rate of 12 per hour according to a Poisson distribution. The probability that there are no customers in the system is m Notesale.co.ük
- a. 0.800
- b. 0.536
- c. 0.369
- d. 0.111
- (Hard)

employs two servers. One erage a server requires 8 minutes to 66. A service cour process a sustomer and service times follow an exponential distribution. Customers arrive a file charter at the rate of 12 per hour according to a Poisson distribution. The probability that an arriving customer must wait for service is

- a. 0.7111
- b. 0.8000
- c. 0.8576
- d. 0.9327
- (Hard)
 - 67. A service counter employs two servers. On average a server requires 8 minutes to process a customer and service times follow an exponential distribution. Customers arrive at the counter at the rate of 12 per hour according to a Poisson distribution. On average, the total number of customers in the system (i.e., waiting and being served) would be
 - a. 1.600
 - b. 2.844
 - c. 3.200
 - d. 4.444

(Hard)