**February 2014 - Pizza Delivery**



As the owner of a pizza delivery restaurant, you are constantly looking for ways to keep costs low while maintaining quality service.  Because your profit margins are thin, you’d like the number of delivery drivers to be as low as possible.

You receive orders from customers at an interarrival time of 6 minutes exponentially distributed.  A driver can pick up one order, deliver it to a customer, and return back to the restaurant in 20 to 60 minutes, equally distributed.

The corporate office mandates that you must have an average order delivery time of under 60 minutes.  Some deliveries can be more than 60 minutes and some can be under 60 minutes, but on average they must be below one hour.

You may hire as many drivers as you like.  But hiring too many drivers will cause your payroll to be unnecessarily high and too few drivers will put you over the 60 minute delivery requirement.  Assume that a driver can only deliver one order per round trip.

**Question:** How many drivers are needed in order to keep average delivery times under one hour?