Graded Assignment 1 - Mercy Copy Shop

Introduction

Mercy Copy Shop receives about 80 orders per hour with a standard deviation of 65. The shop can process about 100 orders per hour with a standard deviation of 35. There is a single copy machine and there is no limitation on the maximum number of items allowed in system.

Part 1

3.5/3.5 points (graded)

Given the assumptions above, answer the following questions, rounding your answers to two decimal places.

What is the current utilization?
Enter your answer in decimal form using two decimal places. For example, if your answer is 23.24%, you should enter .23 in the box below.

0.8 ✔

0.8

What is the expected time an order waits in the queue in minutes?
Enter your answer rounded to two decimal places. For example, if your answer is 12.3456, you should enter 12.35 in the box below.

0.9391875 ✔

0.9391875

What is the expected cycle time in minutes?
Enter your answer rounded to two decimal places. For example, if your answer is 12.3456, you should enter 12.35 in the box below.

1.539187 ✔

1.539187

What is the expected number of orders in process?
Enter your answer rounded to two decimal places. For example, if your answer is 12.3456, you should enter 12.35 in the box below.

2.05225 ✔

2.05225

What is the expected number of orders waiting in the queue?
Enter your answer rounded to two decimal places. For example, if your answer is 12.3456, you should enter 12.35 in the box below.

1.25225 ✔

1.25225

Submit You have used 2 of 2 attempts

✔ Correct (3.5/3.5 points)

Part 2

The copy shop still, has only one copy machine to process all incoming orders. Its customer service analysts have determined that if wait times exceed 5 minutes, then customers will go to a competitor. Currently, new data indicates that the copy shop receives 35 orders per hour on average and one copy machine can process 45 orders per hour on average.

Part 2

1.5/1.5 points (graded)
Assuming that both processes are exponentially distributed. Should the copy shop use only one copy machine?

Yes ▼ ✔

What is the expected number of orders waiting in the queue?
Enter your answer rounded to two decimal places. For example, if your answer is 12.3456, you should enter 12.35 in the box below.

2.722222 ✔

2.722222

Submit You have used 2 of 2 attempts

✔ Correct (1.5/1.5 points)