TJ Maxx recently changed their checkout system in the Oak Brook store. Previously, there were different checkout lines for each cashier and the customer chose which line to wait in (hoping that the shortest one really meant that it would be the quickest). Now they have all customers wait in a single line and then each customer is directed to the next available cashier. Let's see why they may have switched.

1. Below is a table of the time 5 customers waited in line using the old method (multiple waiting lines).

Customer	Waiting Time (min)
A	5
B	10
C	3
D	15
E	2

(a). Compute the mean waiting time.

(b). Sketch a bar-graph indicating the Customer on the horizontal axis and the Waiting Time on the vertical axis. Then draw a horizontal line to indicate the mean waiting time.

(c). Do the wait times vary a lot or a little from the mean waiting time?

(d). Assuming each customer chose the line with the fewest number of people/items, explain why some customers might only wait 2 minutes while others would wait 15 minutes.

2. Below is a table of the time 5 customers waited in line using the new method (single waiting line).

Customer	Waiting Time (min)
A	7
B	8
C	7
D	8
E	5

(a). Compute the mean waiting time.

(b). Sketch a bar-graph indicating the Customer on the horizontal axis and the Waiting Time on the vertical axis. Then draw a horizontal line to indicate the mean waiting time.

(c). Do the wait times vary a lot or a little from the mean waiting time?

3.

(a). Compare the mean waiting time for the two types of waiting-line systems in problems #1 and 2.

(b). If someone asked you how long you could expect to wait in either system, what would you tell them?

(c). Based ***only*** on the **mean waiting time**, is one system better than the other?

4. Looking at the bar graphs, explain which system is better (i.e. likely result in happier customers). Why?

5. Consider the situation(s) that you described in #1(d) about the multi-line system. Explain how they might not occur using the single-line system.

6. If someone asked you how much the waiting times varied in each of the systems, what would you tell them? [Be specific – use numbers in your answer.]