

# Week 12 Self-Assessments (Ungraded)

Started: Dec 1 at 11:59pm

## Quiz Instructions

### UNGRADED SELF-ASSESSMENT

**PURPOSE:** Practice and Exam Prep. The quiz can be taken up to 10 times.

**POINT VALUES HELP STUDENT KEEP TRACK OF NUMBER OF CORRECT RESPONSES BUT ARE NOT TRACKED BY THE COURSE INSTRUCTORS**

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#### Question 1

1 pts

Which of the following is not a cause of the bullwhip effect?

- ☐ price fluctuations
- ☐ small batch sizes
- ☐ order batching
- ☐ gaming
- ☐ inaccurate forecasts



#### Question 2

1 pts

Which is not a way that supply chains try to reduce the impact the bullwhip effect?

- ☐ Reduce incentives to order in large batches or lots
- ☐ Stop promotions
- ☐ Better information sharing
- ☐ Get rid of Discounts
- ☐ Smooth production so variations are smaller



### Question 3

1 pts

What types of patterns can Demand exhibit? (choose all that apply)

- ☐ trends
- ☐ randomness
- ☐ autocorrelation
- ☐ seasonality



### Question 4

1 pts

Consider the following sales data. Forecast the sales for **2017 using a 3 period moving average.**

Year	Actual Sales
2014	450
2015	495
2016	518

2017	563
2018	584

☐ 460☐ 488☐ 480☐ 507☐ 520**Question 5****1 pts**

Consider the following data to forecast sales for 2019 using a 3 period simple moving average.

Year	Actual Sales
2014	450
2015	495
2016	518
2017	563
2018	584

☐ 480☐ 488☐ 460☐ 507☐ 520☐ 555

**Question 6****1 pts**

Consider the following data to forecast sales for 2017 using a 2 period simple moving average.

Year	Actual Sales
2014	450
2015	495
2016	518
2017	563
2018	584

- ☐ 480
- ☐ 488
- ☐ 460
- ☐ 507
- ☐ 520
- ☐ 573.5

**Question 7****1 pts**

Consider the following data to forecast sales for 2019 using a 3 period weighted moving average with weights of .60, .25, and .15.

Year	Actual Sales
2014	450

2015	495
2016	518
2017	563
2018	584

☐ 528☐ 569☐ 579☐ 584☐ 540**Question 8****1 pts**

Consider the following data to forecast sales for 2018 using exponential smoothing with an  $\alpha = .4$

Year	Actual Sales	Forecast
2014	450	450
2015	495	450
2016	518	468
2017	563	488
2018	584	

☐ 490☐ 518☐ 528☐ 540

☐ 548**Question 9****1 pts**

Consider the following data to forecast sales for 2018 using exponential smoothing with an  $\alpha = .8$

Year	Actual Sales	Forecast
2014	450	450
2015	495	450
2016	518	468
2017	563	488
2018	584	

☐ 490☐ 518☐ 528☐ 540☐ 548**Question 10****1 pts**

Given the following data, what is the Tracking Signal and what is your assessment of the value?

Month	Actual Demand	Forecast

1	20	17
2	19	20
3	24	22
4	21	25

- ☐ TS = 3, forecast tends to over predict demand
- ☐ TS = 3, forecast tends to under predict demand
- ☐ TS = 0, overall forecast is not over or under predicting
- ☐ TS = 4, Forecast tends to over predict dem
- ☐ TS = 4, forecast tends to under predict demand

**Question 11****1 pts**

Given the following data, what is the Mean Forecast Error?

Month	Actual Demand	Forecast
1	20	17
2	19	20
3	24	22
4	21	25

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 0

**Question 12****1 pts**

Where would the newsvendor model be least useful?

- ☐ perishable items
- ☐ items with a short selling season
- ☐ items with a long selling season
- ☐ newspapers

**Question 13****1 pts**

What is the critical fractile for a newsboy who buys papers for \$.75 and sells them on the street corner for \$1.25. He has a standing agreement with the local animal boarding facility to sell papers for \$.10 each.

- ☐ .35
- ☐ .56
- ☐ .43
- ☐ .75
- ☐ .62

**Question 14****1 pts**

What happens to the critical fractile if the salvage value for the item increases?



- ☐ The critical fractile gets larger
- ☐ The critical fractile gets smaller
- ☐ It is unchanged
- ☐ Cannot determine from the info given

**Question 15****1 pts**

**(True/False).** Consider a two-tier supply chain consisting of a Wholesaler (**W**) supplying a product to a Retailer (**R**) which, in turn, sells the product to end Customers (**C**). **C** pays **R** \$2.50 per unit. **R** pays **W** \$1.25 per unit. The unit cost to **W** is \$0.75 per unit. **(True/False).** If **W** agrees to buy back unsold product from **R** at \$1 per unit, **R**'s optimal service level (critical fractile) will increase.

- ☐ True
- ☐ False

**Question 16****1 pts**

**(True/False).** In the newsvendor problem, the optimal order quantity depends on the relative cost of stocking too much and stocking too little.

- ☐ True
- ☐ False

**Question 17****1 pts**

The Dollar Store stocks Cadbury Chocolate Easter Eggs for a limited time each Spring. Of course the store only charges a dollar for each egg sold during the Easter season (since it is a dollar store). At the end of the season the remaining egg inventory is given to a children's charity (assume no financial benefit). The Dollar Store advertises and is committed to a 95% service level (critical fractile) on all products sold. What is the implied overage cost target The Dollar Store must hit that justifies the 95% fill rate for the Cadbury Eggs. (Assume that Cadbury does not buyback any unsold product). Choose the closest answer.

- ☐ \$.025
- ☐ \$.05
- ☐ \$.075
- ☐ \$.10
- ☐ \$.25



### Question 18

1 pts

Jimmy sells a **highly perishable** product to dock workers at the Port of Miami. The product costs Jimmy \$4.20 wholesale and he sells the product for \$10. Ignore sales tax, Jimmy doesn't pay it anyway. When Jimmy runs out of product he simply takes orders from the dock workers, batches them up and runs over to a local retail store and buys the exact amount of product needed to fill the orders. At the retail store Jimmy pay \$8.90 for each product (instead of the \$4.20 wholesale price he paid at the beginning of the day). Jimmy feels the need to do this to maintain high levels of customer service. If Jimmy instead of being under, is over, he has to discard the unsold product. Jimmy believes that his demand follows a normal distribution with a mean of 75 and a standard deviation of 16. Considering this information, what is Jimmy's optimum service level (critical fractile)? (Round up to next highest full percent point)

- ☐ 53%
- ☐ 58%

☐ 51%☐ 48%☐ 65%**Question 19****1 pts**

Continuing with Jimmy and the data presented in the previous question, what should be Jimmy's initial daily order quantity? You may use Excel or estimate with the z-table provided below and manually calculate. Either way, "round up" any non-integer answer.

z	.0	.1	.2	.3	.4	.5	.6	.7	.8
0.0	.5000	.5398	.5793	.6179	.6554	.6915	.7257	.7580	.7881
1.0	.8413	.8643	.8849	.9032	.9192	.9332	.9452	.9554	.9641
2.0	.9773	.9821	.9861	.9893	.9918	.9938	.9953	.9965	.9974
3.0	.9987	.9990	.9993	.9995	.9997	.9998	.9998	.9999	.9999

☐ 75☐ 73☐ 77☐ 89

Not saved

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