

# Kristen cookie answer essay sample



**ASSIGN  
BUSTER**

1. Assuming you have only one order, how long will it take you to fill the order? Based on the flowchart from the group analysis, it will take 26 minutes to fill one order. I came to this conclusion based on the number of minutes it takes to clean equipment and mix the dough (6), scoop dough into tray (2), pre-heat oven and set timer (1), baking time (9), cooling time (5), packing time (2) and the one minute it takes to give the order and receive payment. Obviously, this process can be improved upon, but given the initial information, and the constraints of cleaning and baking time; this is how long it would take to fill one order.

2. How many orders can be filled in a night assuming you are open 4 hours? Capacity cannot exceed that of the bottleneck, but in one four hour period the roommates could make 22 batches. Assuming a two-dozen cookie order, we have to consider that for the first dozen, the roommate will set the timer and preheat after Kristen has spooned the cookies on the tray. However, when baking the second order the roommate simultaneously cools and then packs the cookies from the first order. Kristen can start mixing the second batch without waiting for the first-batch process to be completed (she starts washing out the bowl as soon as she finishes filling the tray). And preheating doesn't have to occur after the first batch, just timer setting.

Therefore, to fill a complete order for two dozens of cookies will be 36 min (see attached Process Flow Chart). So for each first dozen of cookies we need 26 min, while for each additional dozen we will need only 10 min (see attached Process Flow Chart). The oven starts running 8 minutes into operations, and continues to turn a new batch every 10 minutes. 8 minutes have to be subtracted at the end, because the last batch needs that long to

be cooled/packed/sold. Therefore the calculation should be  $240-16/10 = 22$  batches per night. In essence the equation takes into account the “ dead” prep time at the beginning and the “ package” time at the end, when we wouldn’t have time to bake another batch.

Interesting find – even if the orders are for 3 dozen of the same cookie or for a different type each order, the maximum that can be produced is 22 dozen.

3. How much of your own and your roommate’s valuable time will it take to fill each order? What is the utilization for you and your roommate? Based off of our Current Process Flow Chart It will take me a total of 8 minutes per batch. It will take my roommate a total of 4 minutes per batch.

Assuming order is for one dozen:

Time taken by Kristen = 8 Minutes (washing, mixing and spooning the tray activities) Time taken by my roommate = 4 Minutes (setting timer, packing and collecting money activities) Remaining 12 minutes is accounted by baking and cooling process.

My definition of valuable time is time that can be used to do other productive work. Therefore, processes carried out by Kristen, mixing the ingredients and dishing the cookies onto the tray, are 8 actual activated minutes. These 8 minutes are activated time, not just available time because she has to be physically present and doing “ work”, the remaining time is just available time for other things. However, only 4 minutes of the roommate’s valuable time is activated because the 9 minutes (baking of cookies) and 5 minutes (cooling the cookies) are available time where she is not being utilized, and is just waiting around.

4. Because your baking trays can hold exactly one dozen cookies, you will produce and sell cookies by the dozen. Should you give any discount for people who order two-dozen cookies, three-dozen cookies, or more? If so, how much? Explain how you arrived at your conclusion.

Cost is a factor. The cost of ingredients and the box are the same, no matter the number of cookies baked. Therefore, the only resource that may differ with the size of the batch is labor.

Assuming your time is worth \$12 per hour, your labor costs would be: #

Cookies in Batch	Minutes	Cost	Cost Per Dozen
1 dozen	12	\$2.40	\$2.40
2 dozen	17	\$3.40	\$1.70
3 dozen	22	\$4.40	\$1.47

$(12/60 = .2 * 12 = 2.40)$

$(17/60 = .28 * 6 = 1.70)$

$(22/60 = .36 * 4 = 1.47)$

I think you could afford to give a discount for two and three-dozen orders. A two-dozen order doesn't cost twice as much as a one-dozen order. Therefore, discounts can be given to people who order two-dozen or more cookies. This is because, the wash bowl, add and mix ingredients that is performed by Kristen will take only 6 minutes per order for a maximum order size of 3 dozen cookies. So Kristen will spend the same 6 minutes for washing, mixing and filling the tray regardless of whether the order quantity is 1, 2, or 3-dozen. Similarly, when the roommate delivers and accepts money for the order it will take 1 minute per order regardless of the order size.

You could also give discounts to those who purchase more than one batch of the same cookie - that would be even less work for the roommates.

## Profitability

Assume Price = \$5 / Dozen; Cost = \$0. 70

Max profit =  $(22 \times 5) - (22 \times .07) = \$110 - \$15.40 = \$94.60$  or \$23.65/hr

One -Dozen:

Activity	Resource	Cycle Time	Start Time	Finish Time
Order Entry	E-mail	00: 00	00: 00	00: 00
Wash Bowl, Mix	Self	6 minutes	00: 00	00: 06
Fill Tray	Self	2 minutes	06: 00	08: 00
Prepare Oven	Roommate	1 minute	08: 00	09: 00
Bake Oven		9 minutes	09: 00	18: 00
Remove	Roommate	0 minutes	18: 00	18: 00
Cool	None	5 minutes	18: 00	23: 00
Pack, Get Paid,	Roommate	3 min.	23: 00	26: 00
Self		8		
Roommate		4		
Total Labor	Minutes	12		

Two-Dozen

Activity	Resource	Cycle Time	Start Time	Finish Time
Order Entry	E-mail	0 minutes	00: 00	00: 00
Wash Bowl, Mix	Self	6 minutes	00: 00	06: 00
Fill Tray 1	Self	2 minutes	06: 00	08: 00
Fill Tray 2	Self	2 minutes	08: 00	10: 00
Prepare Oven 1	Roommate	1 min.	08: 00	09: 00
Bake Oven 1,		9 minutes	09: 00	18: 00
Remove	Roommate	0 minutes	18: 00	18: 00

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Cool 1 None 5 minutes 18: 00 23: 00

Prepare Oven 2 Roommate 1 min. 18: 00 19: 00

Bake Oven 2, 9 minutes 19: 00 28: 00

Remove 2 Roommate 0 minutes 28: 00 28: 00

Cool 2 None 5 minutes 28: 00 33: 00

Pack 1 Roommate 2 minutes 23: 00 25: 00

Pack 2 Roommate 2 minutes 33: 00 35: 00

Collect Money Roommate 1 min 35: 00 36: 00

Self 10

Roommate 7

Total Labor Minutes 17

Three-Dozen

Activity Resource Cycle Time Start Time Finish Time

Order Entry E-mail 0 minutes 00: 00

Wash Bowl, Mix Self 6 minutes 00: 00 06: 00

Fill Tray 1 Self 2 minutes 06: 00 08: 00

Fill Tray 2 Self 2 minutes 08: 00 10: 00

Fill Tray 3 Self 2 minutes 10: 00 12: 00

Prepare Oven 1 Roommate 1 min. 08: 00 09: 00

Bake Oven 1, 9 minutes 09: 00 18: 00

Remove Roommate 0 minutes 18: 00 18: 00

Cool 1 None 5 minutes 18: 00 23: 00

Prepare Oven 2 Roommate 1 min. 18: 00 19: 00

Bake Oven 2, 9 minutes 19: 00 28: 00

Remove 2 Roommate 0 minutes 28: 00 28: 00

Cool 2 None 5 minutes 28: 0033: 00

Prepare Oven 3 Roommate 1 min. 28: 0029: 00

Bake Oven 2, 9 minutes 29: 0038: 00

Remove 3 Roommate 0 minutes 38: 0038: 00

Cool 3 None 5 minutes 38: 0043: 00

Pack 1 Roommate 2 minutes 23: 0025: 00

Pack 2 Roommate 2 minutes 33: 0035: 00

Pack 3 Roommate 2 minutes 43: 0045: 00

Collect Money Roommate 1 min 45: 0046: 00

Self 12

Roommate 10

Total Labor Minutes 22