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Mathematical Modelling Homework Help

Question:

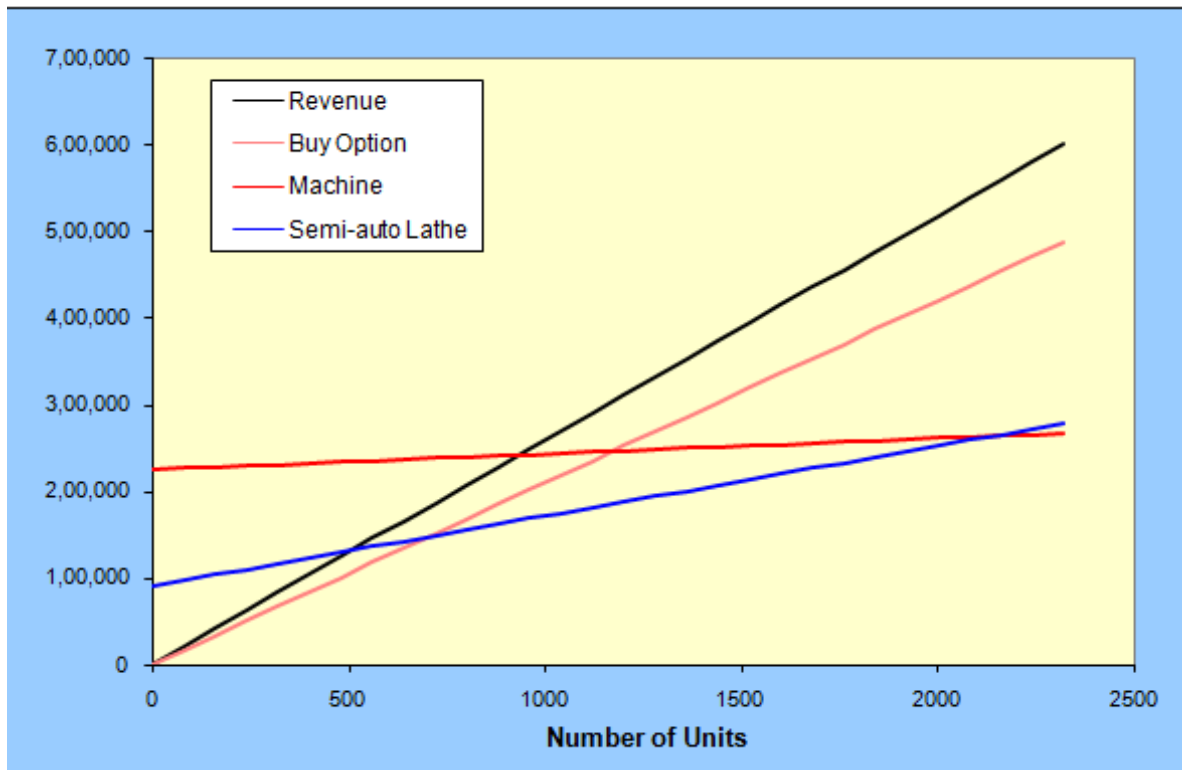
Find the breakeven for the below situation. Increment quantity by 80 units

Selling Price	\$	259.00	
Alternative		Fixed Cost	Unit Variable Cost
Buy	\$	-	\$ 210.00
Machine	\$	2,25,000.00	\$ 18.00
Semi-auto Lathe	\$	90,000.00	\$ 81.00

Solution:

Q	TR	TC_Buy	TC_A	TC_B
0	0	0	225000	90000
80	20720	16800	226440	96480
160	41440	33600	227880	102960
240	62160	50400	229320	109440
320	82880	67200	230760	115920
400	103600	84000	232200	122400
480	124320	100800	233640	128880
560	145040	117600	235080	135360
640	165760	134400	236520	141840
720	186480	151200	237960	148320
800	207200	168000	239400	154800
880	227920	184800	240840	161280
960	248640	201600	242280	167760
1040	269360	218400	243720	174240
1120	290080	235200	245160	180720
1200	310800	252000	246600	187200
1280	331520	268800	248040	193680
1360	352240	285600	249480	200160
1440	372960	302400	250920	206640
1520	393680	319200	252360	213120
1600	414400	336000	253800	219600
1680	435120	352800	255240	226080

1760	455840	369600	256680	232560
1840	476560	386400	258120	239040
1920	497280	403200	259560	245520
2000	518000	420000	261000	252000
2080	538720	436800	262440	258480
2160	559440	453600	263880	264960
2240	580160	470400	265320	271440
2320	600880	487200	266760	277920



Question 2: "n" Jobs on One Machine.

The process time and due date is given. Find the slack, flow time and days late

Job	Process Time	Due Date
A	3	5
B	4	6
C	2	6
D	5	7
E	3	2
F	3	4
G	2	1

Solution:

Job Seq.	Process Time	Due Date	Slack	Flow Time	Days Late
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E	3	2	-1	3	1
D	5	7	2	8	1
C	2	6	4	10	4
B	4	6	2	14	8
A	3	5	2	17	12
F	3	4	1	20	16
G	2	1	-1	19	18
Totals	22		9	91	60

Schedule Performance	Total	Average
Flow Time	91	13.00
Lateness	60	8.57

