Operations Management 101 A Guide to Microsoft Excel using select problems.

Below are instructions for Problem 4 in Chapter 5.

Step 1: Insert a Data table.

- a) In cell A1, type "Data" and press Enter.
- b) With your mouse, highlight Cells A1 to E1.
- c) Press the Merge and center button in the top toolbar (pictured below).



d) Click cell A1 and create outline using icon shown below:

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- e) In cell B3 type "Yearly Demand."
- f) Merge into cell E3 using step described in part c.
- g) Click cell B3 and create an underline by clicking the icon shown below:

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h) Create the table shown below:

1	А	В	С	D	E	
1	Data					
2						
3	Yearly Demand					
4		1 (in 000s)	2 (in 000s)	3 (in 000s)	4 (in 000s)	
5	Plastic 90	32	44	55	56	
6	Plastic 180	15	16	17	18	
7	Plastic 360	50	55	64	67	
8	Bronze 90	7	8	9	10	
9	Bronze 180	3	4	5	6	
10	Bronze 360	11	12	15	18	
	1 2 3 4 5 6 7 8 9 10	A A A A A A A A A A A A A A A A A A A	A B 1	A B C 1	A B C D 1	

i) To increase the column width of column A, double-click the area shown below:

				5-		
	А		В	С	D	E
1				Data		
2						
3				Yearly D	emand	
4		1	(in 000s)	2 (in 000s)	3 (in 000s)	4 (in 000s)
5	Plastic 90		32	44	55	56
6	Plastic 180		15	16	17	18
7	Plastic 360		50	55	64	67
8	Bronze 90		7	8	9	10
9	Bronze 180)	3	4	5	6
10	Bronze 360)	11	12	15	18

Step 2: Answer Questions Relating to Plastic

- a. In cell A12, enter "Plastic" and format the same way as described in **Step 1** parts a-d.
- b. Starting in cell B13, enter data shown below:

	12	Plastic					
8	13		Operators needed	4			
	14		Operating Capacity:	200			
	15		Machines available:	1			
	16						

c. In cell A18, type "Demand for plastic sprinklers."

i. To move down a line within a single cell, hold Alt and press Enter.

d. In cell B18, type "=SUM(B5:B7)"; press enter.

- i. Note that instead of typing cell locations, you can simply click the cell you are referencing.
- e. Copy and paste the formula from B18 into cells C18-E18:
 - i. Click cell B18
 - ii. Hover mouse over the bottom right hand corner of the cell until a bold cross appears.
 - iii. Click and drag across to cell E18 and notice how the formula copies.
- f. In cell B19, type "=B18/(\$D\$14*\$D\$15)"; press enter
 - i. The dollar sign (\$) makes use of what is known as an Absolute Reference. This is necessary in order to copy the formula into cells C19-E19 because the formula needs to reference those exact cells every time.
- g. To format as a percentage, highlight cells B19-E19 and click icon shown below:



- h. In cell B20, type "=B18/\$D\$14"; press enter.
 - i. See part f. i. regarding the use of the \$.
- i. Copy to cells C20-E20 using the technique described in Step 2 part e.
- j. In cell B21, type "=B20*\$D\$13"; press enter.
 - i. See part f. i. regarding the use of the \$.
- k. Copy to cells C21-E21 using the technique described in Step 2 part e.

	Α	В	С	D	E
10	Bronze 360	11	12	15	18
11					
12			Plastic		
13		Operators needed		4	
14		Operating Capacity:		200	
15		Machines available:		1	
16					
17		Year 1	Year 2	Year 3	Year 4
18	Demand for plastic sprinklers	=SUM(B5:B7)	=SUM(C5:C7)	=SUM(D5:D7)	=SUM(E5:E7)
19	% of capacity used	=B18/(\$D\$14*\$D\$15)	=C18/(\$D\$14*\$D\$15)	=D18/(\$D\$14*\$D\$15)	=E18/(\$D\$14*\$D\$15)
20	Machine requirements	=B18/\$D\$14	=C18/\$D\$14	=D18/\$D\$14	=E18/\$D\$14
21	Labor requirements	=B20*\$D\$13	=C20*\$D\$13	=D20*\$D\$13	=E20*\$D\$13

1. Below is a screenshot of what your answers should look like:

	А	В	С	D	E				
12	Plastic								
13		Operators	s needed	4					
14		Operating	g Capacity:	200					
15		Machines	available:	1					
16									
17		Year 1	Year 2	Year 3	Year 4				
18	Demand for plastic sprinklers	97	115	136	141				
19	% of capacity used	48.50%	57.50%	<mark>68.00%</mark>	70.50%				
20	Machine requirements	0.485	0.575	0.680	0.705				
21	Labor requirements	1.94	2.30	2.72	2.82				

Step 3: Answer Questions Relating to Bronze

- a. Follow the steps described in Step 2.b. Below is a screenshot of what your answer:

	А	В	B C		E				
22									
23	Bronze								
24		Operators needed		2					
25		Operating capacity:		12					
26		Machines available		3					
27									
28		Year 1	Year 2	Year 3	Year 4				
29	Demand for plastic sprinklers	=SUM(B8:B10)	=SUM(C8:C10)	=SUM(D8:D10)	=SUM(E8:E10)				
30	% of capacity used	=B29/(\$D\$25*\$D\$26)	=C29/(\$D\$25*\$D\$26)	=D29/(\$D\$25*\$D\$26))=E29/(\$D\$25*\$D\$26)				
31	Machine requirements	=B29/\$D\$25	=C29/\$D\$25	=D29/\$D\$25	=E29/\$D\$25				
32	Labor requirements	=B31*\$D\$24	=C31*\$D\$24	=D31*\$D\$24	=E31*\$D\$24				

	-						
1	А	В	С	D	E		
22							
23		В	ronze				
24		Operators	s needed	2			
25		Operating	g capacity:	12			
26		Machines	available	3			
27							
28		Year 1	Year 2	Year 3	Year 4		
29	Demand for plastic sprinklers	21	24	29	34		
30	% of capacity used	58.3%	66.7%	80.6%	94.4%		
31	Machine requirements	1.75	2.00	2.42	2.83		
32	Labor requirements	3.50	4.00	4.83	5.67		