MGMT-3453-X20: Homework 2

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library(tidyverse)
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Problem 4

Homework Problem 4

- A firm that has recently experienced an enormous growth rate is seeking to lease a small plant in either Memphis, Biloxi, or Birmingham. Prepare an economic analysis of the three locations given the following information:
- Annual costs for building, equipment, and administration would be $1,400,000 for Memphis, $1,940,000 for Biloxi, and $1,100,000 for Birmingham. Labor and material are expected to be $10 per unit in Memphis, $6 per unit in Biloxi, and $20 per unit in Birmingham. The Memphis location would increase system transportation costs by $50,000 per year, the Biloxi location would increase them by $60,000 per year, and the Birmingham location would increase those costs by $25,000 per year. Expected annual volume is 60,000 units.

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# Memphis - increase system tansit cost 50,000
fixed_cost = 1400000
# $10/ unit
variable_cost = 10


#  Biloxi - increase system tansit cost 60,000
fixed_cost = 1940000
# $6/unit
variable_cost  = 6

#  Birmingham - increase system tansit cost 25,000
fixed_cost = 1100000
# $20/unit
variable_cost = 20

annual_volume = 60000
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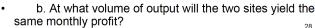
Problem 5

Homework Problem 5

- A retired auto mechanic hopes to open his own rust-proofing shop. Customers would be area new car dealers. Two locations are being considered, one in the center of the city and one on the outskirts of the city. The in-city location would involve fixed monthly costs of $7,000 and labor,materials and transportation costs of $10 per car. The outside location would have fixed monthly costs of $4,800 and labor, materials, and transportation costs of $18 per car. Dealer price at either location will be $90
- per car.
-     a. Which location will yield the greatest profit if monthly demand is
-             (1) 200 cars?
-             (2) 300 cars?
-     b. At what volume of output will the two sites yield the same monthly profit?

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Problem 6

Operation Homework # 6

- Solve the following transportation problem.

From\To	A	B	C	D	Supply
1	10	10	9	15	360
2	9	8	5	10	250
3	8	5	13	7	300
Demand	260	400	250	300	1210/910

From\To	A	B	C	D	Supply
1	10	10	9	15	360
2	9	8	5	10	250
3	8	5	13	7	300
DUMMY	0	0	0	0	300
DEMAND	260	400	250	300	1210\1210

Note Supply=Demand

Balanced Problem

Final Cost = 6,350

Dummy – D   300

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Problem 7

Operations Homework # 7

From\To	D	E	F	G	H	Supply
A	10	40	10.4	17	10.3	520
B	8.5	25	7.5	2.5	4	200
C	10.5	10	9	8.4	3.5	200
Demand	150	200	250	190	130	920\920

Note: Problem is Balanced