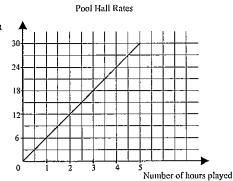
Mathematics	306/326
DEMIES	17-3

Annie, Gaby and Eric love to play pool. They play in various pool halls in town.

The cost of playing at Annie's favourite pool hall is $\begin{tabular}{l} Cost \\ (S) \\ represented by the adjacent graph. \\ \end{tabular}$



The cost of playing at Gaby's favourite pool hall is shown on the table of values below:

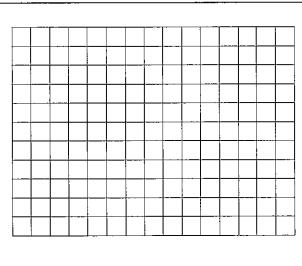
Pool Hall Rates

Number of hours played	0	1	2	3	4	5
Cost \$	15.00	15.00	15.00	15.00	15.00	15.00

At Eric's favourite place, they charge a flat rate of \$6.00 per table per hour.

If a game lasts less that two and a half hours, whose favourite pool hall offers the best deal?

Justify your answer. Show all your work.



Answer:	

Bill received an offer to work as a salesman at two competing department stores. Company A offered to pay him a salary of \$250 per week plus a commission of 6% on his total weekly sales. Company B offered to pay him a salary of \$350 per week plus a commission of 2% of his total weekly sales. Under what conditions would be earn more money working for Company A than working for Company B? Show all your work. He would earn more money working for Company A under the condition that Answer: The earnings of three salesmen are calculated as follows: - Mark receives a base pay of \$300 plus 5% commission on sales. - Eric receives a base pay of \$200 plus 10% commission on sales. - Joel earns only 30% commission on sales. Last week, the sales of all three salesmen were of equal value. Both Eric and Joel earned the same pay for the week. How much did Mark earn last week?

Show all your work.		
Answer: Last week, Mark earned \$	•	

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Mathematics 306/326

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Question	Item	Objective	Type	Skill
1	0058	ALG.01.05	Extended answer	Problem solving
2	0174	ALG.02	Extended answer	Problem solving
3	0260	ALG.02	Extended answer	Problem solving

2- Correction key

ممانسامه معماس 1

Number of Hours Played	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
Cost at Annic's Favourite Place \$	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00	27.00	30.00
Cost at Gaby's Favourite Place \$	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Cost at Eric's Favourite Place \$	0.00	6.00	6.00	12.00	12.00	18.00	18.00	24.00	24.00	30.00	30.00

Answer

Annie's favourite place offers the best deal because, in comparison to the others, a game is less expensive if it lasts a fraction of an our.

Example of an appropriate algebraic solution

Let x: amount of sales per week

salary earned Let y:

Company A Company B $y_1 = 0.06x + 250$ $y_2 = 0.02x + 350$

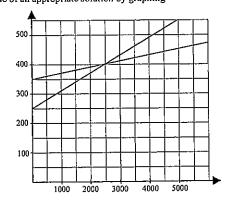
Solving the two equations by comparison

0.06x + 250 = 0.02x + 3500.04x = 100

x = 2500

By substitution into either equation y = 0.06(2500) + 250 = 400

Example of an appropriate solution by graphing



Example of an appropriate solution

System of relations

 S_M , S_E and S_J , be each salesman's salary Let ν , the sales (\$).

> $S_M = 300 \pm 0.05\nu$ Mark's salary: $S_E=200\pm0.1\nu$ Eric's salary: $S_J = 0.3v$ Joel's salary:

Eric and Joel earned the same amount $S_E = S_J$

> 200 + 0.1v = 0.3v0.2v = 200v = 1000

Mark's earnings

 $S_M = 300 \pm 0.05\nu$ $S_M = 300 + 0.05 \times 1000$

 $S_M = 350$

Answer:

Mark earned \$350.

The intersection of the two graphs occurs at (2500, 400)

If he sells more than \$2500 he will be better off working for company A than for company B.

Answer

He would earn more money working for company A under the condition that he would sell more than \$2500 worth of merchandise