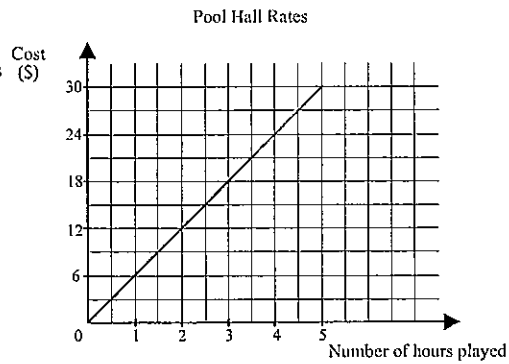


- 1 Annie, Gaby and Eric love to play pool. They play in various pool halls in town.

The cost of playing at Annie's favourite pool hall is represented by the adjacent graph.



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 than two and a half hours, whose favourite pool hall offers the best deal?
Justify your answer. Show all your work.

Answer: _____

1- Contents

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

1 Example of an appropriate solution

Number of Hours Played	0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5
Cost at Annie'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 hour.

2 Example of an appropriate algebraic solution

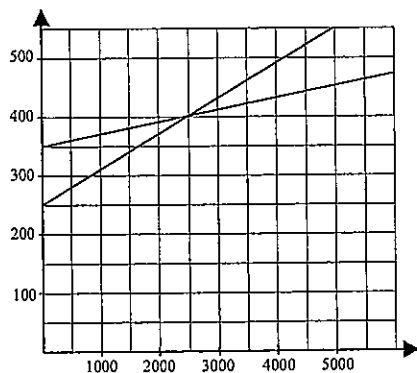
Let x : amount of sales per week
Let y : salary earned

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

Solving the two equations by comparison
 $0.06x + 250 = 0.02x + 350$
 $0.04x = 100$
 $x = 2500$

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

Example of an appropriate solution by graphing



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

3 Example of an appropriate solution

System of relations

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

Mark's salary: $S_M = 300 + 0.05v$
Eric's salary: $S_E = 200 + 0.1v$
Joel's salary: $S_J = 0.3v$

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

$$\begin{aligned} 200 + 0.1v &= 0.3v \\ 0.2v &= 200 \\ v &= 1000 \end{aligned}$$

Mark's earnings
 $S_M = 300 + 0.05v$
 $S_M = 300 + 0.05 \times 1000$
 $S_M = 350$

Answer: Mark earned \$350.