SOLVE AND INTERPRET LINEAR SYSTEMS...BY GRAPHING

Example:
Galaxy Video rents a game machine for $10 and video games for $3 each.
4-Less Video rents a game machine for $7 and video games for $4 each.

a) Write an **equation** to represent the cost of renting one game machine and video games at **each** store. Define your variables.

Let C be the cost
Let g be the # of video games

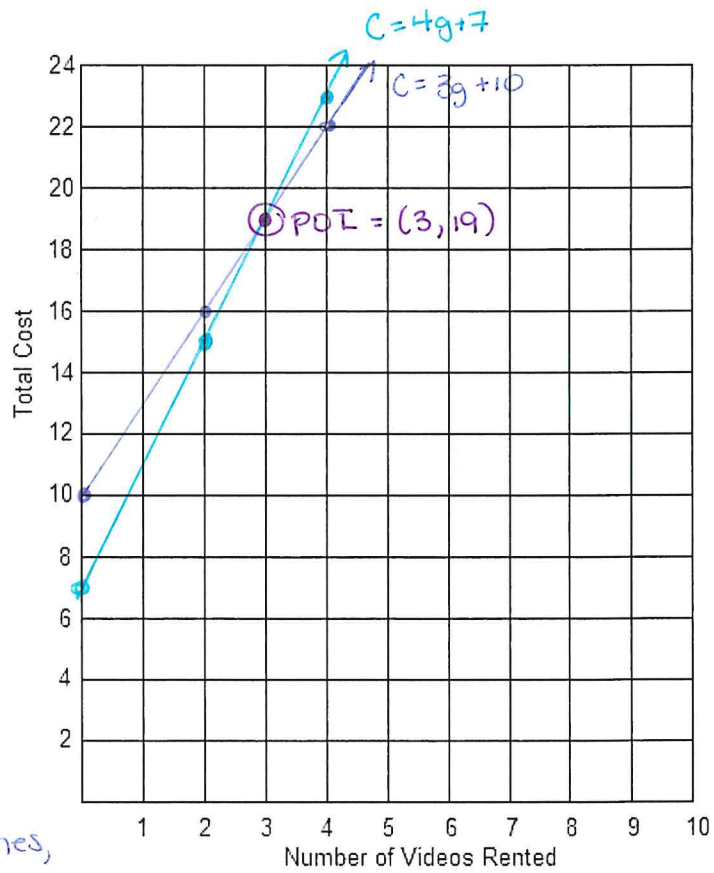
$C = 3g + 10$
$C = 4g + 7$

b) Create a **table of values** for each equation. (Use a maximum number of 6 video games.)

g	C = 3g + 10	Plot
0	C = 3(0) + 10 = 10	(0, 10)
2	C = 3(2) + 10 = 16	(2, 16)
4	C = 3(4) + 10 = 22	(4, 22)
6	C = 3(6) + 10 = 28	(6, 28)

g	C = 4g + 7	Plot
0	C = 4(0) + 7 = 7	(0, 7)
2	C = 4(2) + 7 = 15	(2, 15)
4	C = 4(4) + 7 = 23	(4, 23)
6	C = 4(6) + 7 = 31	(6, 31)

c) **Graph** the two equations on the same set of axes.



d) What does the **point of intersection** represent?

The number of games rented so the cost is the same

e) Describe the situation when each video store is less expensive than The other.

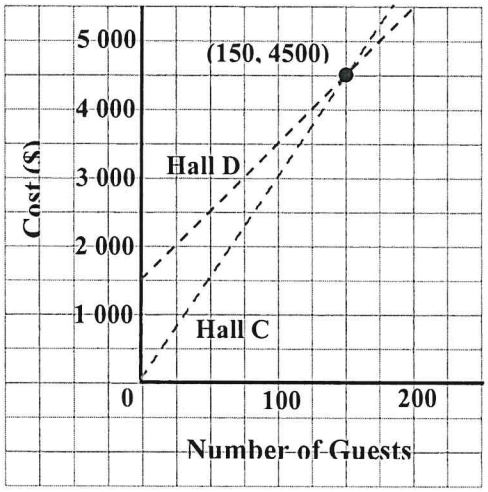
If you rent 0-2 games, 4-less Video is cheaper

If you rent greater than 3 games, Galaxy Video is cheaper

Example

1. Each graph compares the rental costs of two halls. For each graph:
   i) Describe what the point of intersection represents.
   ii) For how many guests is each hall cheaper? Explain

a)

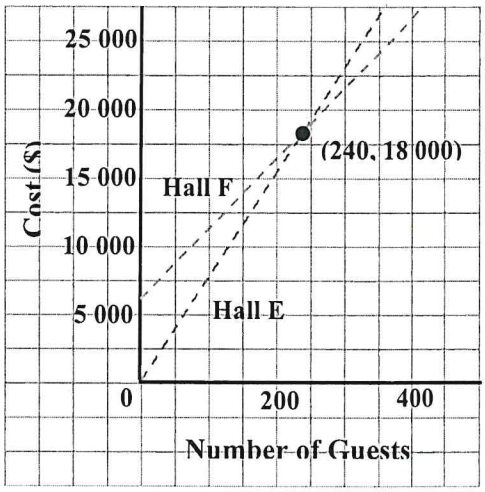


i) At 150 guests, the two halls cost the same to rent

ii) If under 150 guests attend Hall C is cheaper -- the line is lower on the graph

If over 150 guests attend, Hall D is cheaper.

b)



i) At 240 guests, the two halls cost the same to rent.

ii) If under 240 guests attend, Hall E is cheaper -- the line is lower on the graph

If over 240 guests attend, Hall F is cheaper

2. This graph represents the costs to produce and sell pizza. Graph A represents the daily cost to produce pizza. Graph B represents the daily income from the sale of pizzas.
   a) Describe what the point of intersection represents

At 30 pizzas produced, the daily cost & the daily income are the same

   b) How many pizzas must be sold before there is a profit (that is, the income is greater than the cost)? Explain.

31 pizzas - at 30 pizzas, they break even