

DAY 3 – Graphing method

1. For Megan's sixteenth birthday, her parents are planning a party. Tony's Pizzeria charges \$150 for the party room and \$12 per guest for the cost of food. Hamburger Joey charges \$180 for the party room and \$10 per guest.

a) Write a system of linear equations to represent the situation.

let C be total cost
let g be # of guests

Tony: $C = 12g + 150$

Joey: $C = 10g + 180$

b) Fill in the tables to help you graph the lines

Tony's:

guests	total cost
0	150
20	390
40	630

Joey's:

guests	total cost
0	180
20	380
40	580

c) Graph the lines. Label axes, lines and graph with what each represents. Choose appropriate scale.

Range for $x = 40 - 0 = 40$ break needed? NO

$\frac{\text{Range}}{\text{\# of Squares}} = \frac{40 \text{ guest}}{27 \text{ squares}} = 1.5$ round up $\frac{2 \text{ guest}}{1 \text{ square}}$

Range for $y = 630 - 150 = 480$ break needed? yes

$\frac{\text{Range}}{\text{\# of Squares}} = \frac{480 \$}{25 \text{ sq.}} = 19.2$ round up $\frac{20 \$}{1 \text{ square}}$
need 1 for break.

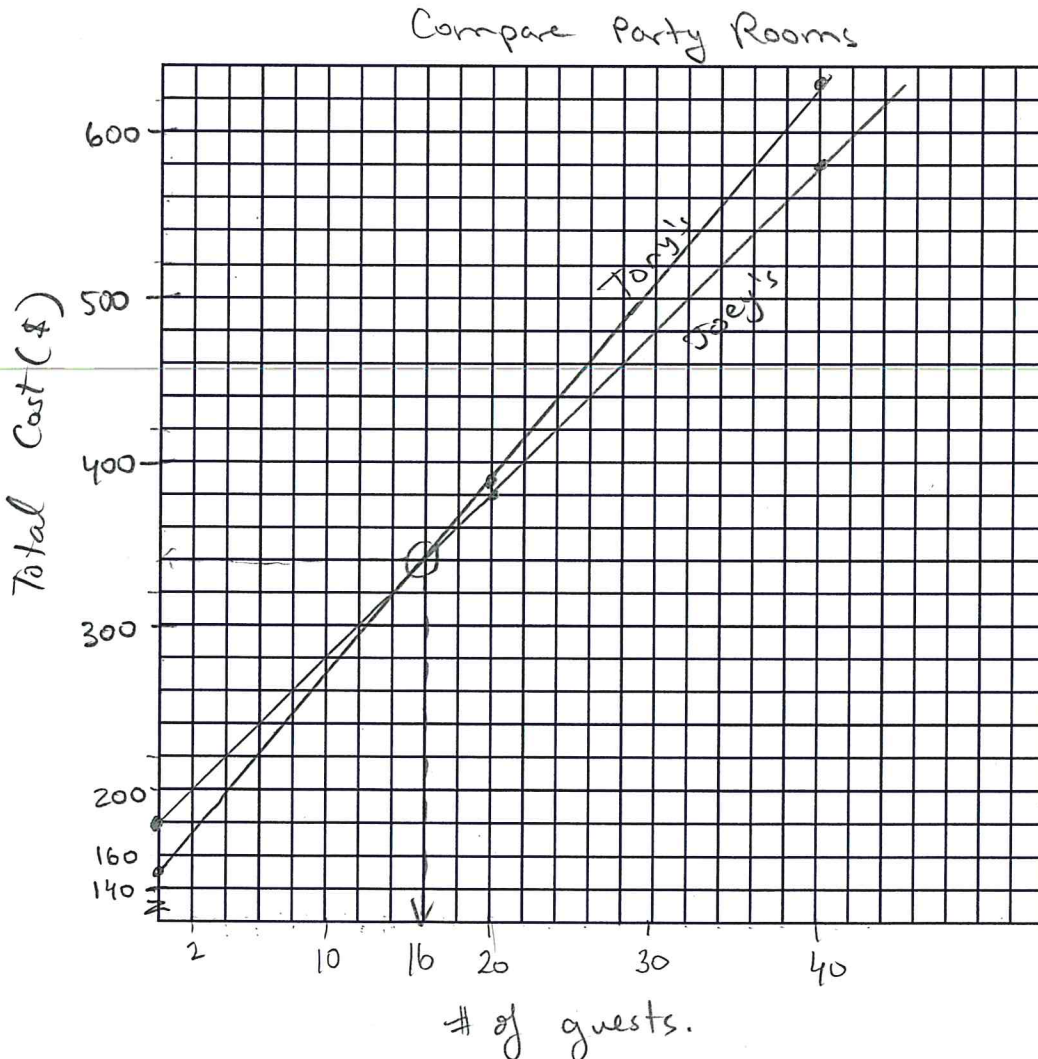
d) State the point of intersection.

$(16, 340)$

e) What does this point of intersection represent?

For 16 guests both companies charge \$340.

f) Check your point of intersection in both equations to see if your graph is accurate



check in ①

$$\begin{array}{r} C = 12g + 150 \\ \hline 340 \quad 12(16) + 150 \\ \quad \quad 192 + 150 \\ \quad \quad \quad \rightarrow 342 \\ \text{not exact ;} \end{array}$$

check in ②

$$\begin{array}{r} C = 10g + 180 \\ \hline 340 \quad 10(16) + 180 \\ \quad \quad 160 + 180 \\ \quad \quad \quad \rightarrow 340 \\ \text{ok Here} \end{array}$$

MUST be exact for BOTH to be accurate!

FunNGames Video rents game machines for \$10 and video games for \$3 each. Big Vid rents game machines for \$7 and video games for \$4 each. Let y be the total rental cost and x the number of games rented.

a) Write a system of linear equations to represent the situation.

FunNGames: $y = 10 + 3x$

Big Vid: $y = 7 + 4x$

b) Fill in the tables to help you graph the lines

FunNGames:

games	total cost
0	10
2	16
4	22

Big Vid:

games	total cost
0	7
2	15
4	23

c) Graph the lines. Label axes, lines and graph with what each represents. Choose appropriate scale.

Range for $x = 4 - 0 = 4$ break needed? NO
 $\frac{\# \text{ of Squares}}{\text{Range}} = \frac{27 \text{ squares}}{4 \text{ games}} = 6.75$ round down $\frac{5 \text{ squares}}{1 \text{ game}}$

Range for $y = 23 - 7 = 16$ break needed? NO
 $\frac{\# \text{ of Squares}}{\text{Range}} = \frac{26 \text{ squares}}{16 \$} = 1.6$ round down $\frac{1 \text{ square}}{1 \$}$

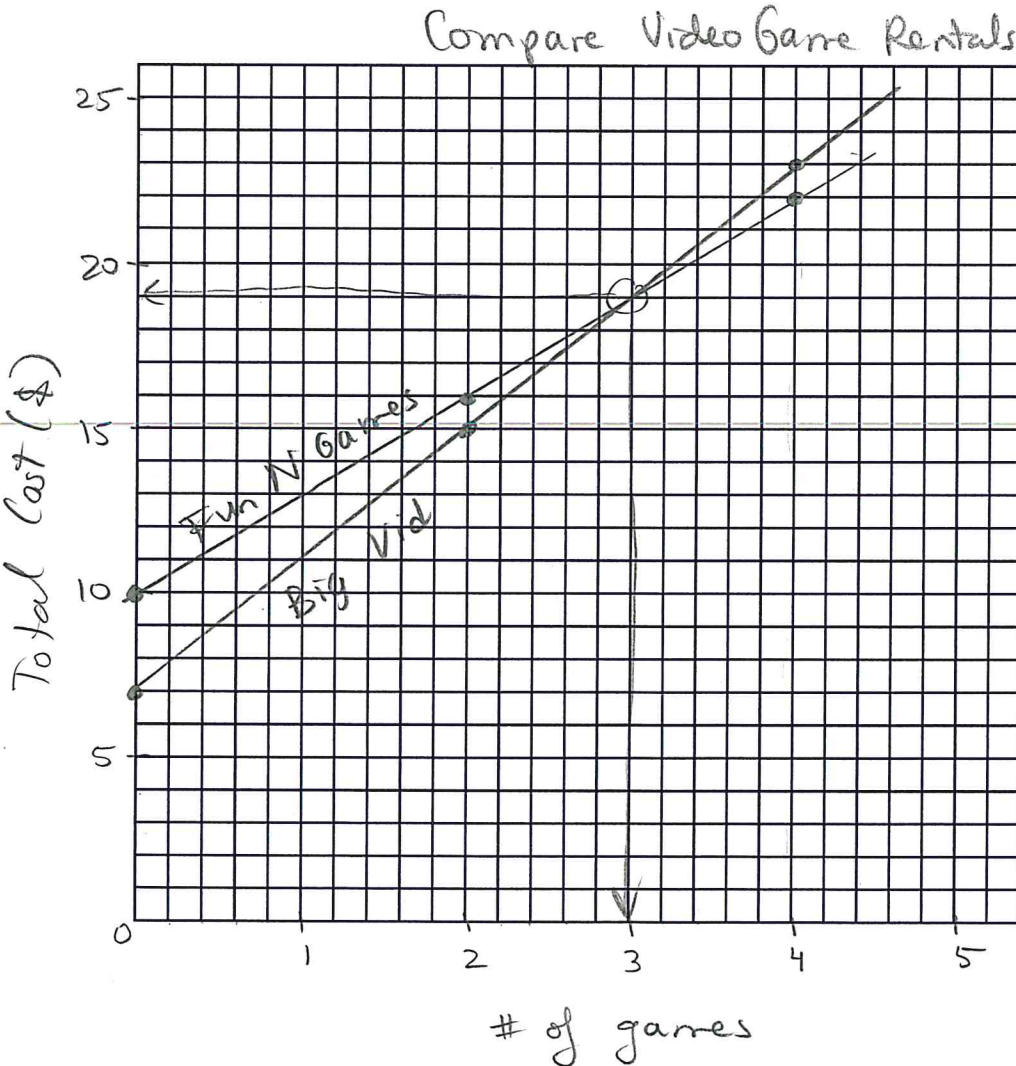
d) State the point of intersection.

$(3, 19)$

e) What does this point of intersection represent?

for 3 games both rentals cost \$19.

f) Check your point of intersection in both equations to see if your graph is accurate



check in (1)

$$\begin{array}{r} y = 10 + 3x \\ 19 \quad 10 + 3(3) \\ \quad 10 + 9 \\ \quad \quad 19 \\ \quad \quad \text{good!} \end{array}$$

check in (2)

$$\begin{array}{r} y = 7 + 4x \\ 19 \quad 7 + 4(3) \\ \quad 7 + 12 \\ \quad \quad 19 \\ \quad \quad \text{good} \end{array}$$

∴ the POI is accurate 😊