Name: _Key_

Date: _____ Period: _____

1.) A group of students from Dundee-Crown High School is planning a trip to New York City. Their student council is investigating bus companies that offer special group plans. Two advertisements for bus companies are given below.

NYC TRAVEL
Daily Trips to NYC
at 6am and 10am
★ $400 booking fee
★ $10 per student

LIBERTY CHARTER
★ LOW $200 booking fee
★ $15 per student
★ Travel at 7am or NOON daily!!

a.) Define your variables. Then create equations to represent the total cost for each company for one month.

Define variables

x = _NUMBER OF STUDENTS_
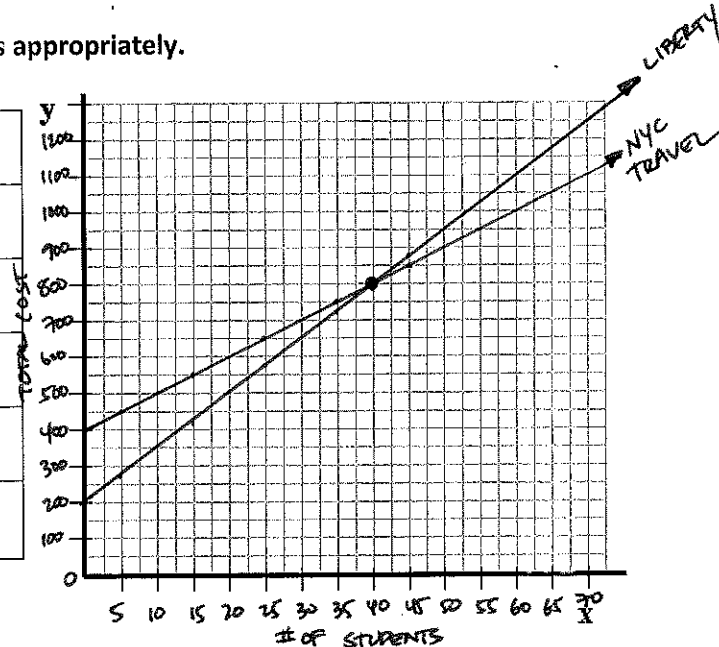
y = _TOTAL COST_

Equations

NYC Travel: $Y = 10X + 400$

Liberty Charter: $Y = 15X + 200$

b.) Graph your equations. Be sure to label and scale your axes appropriately.

# of Students	NYC	Liberty
5	450	275
15	550	425
25	650	575
35	750	725
45	850	875

c.) How many students would make NYC Travel the better deal? Explain how you know.

X > 40 : NYC TRAVEL WOULD BE A BETTER DEAL WHEN THE NUMBER OF STUDENTS IS GREATER THAN 40.

d.) How many students would make Liberty Charter the better deal? Explain how you know.

X < 40 : LIBERTY CHARTER WOULD BE A BETTER DEAL WHEN THE NUMBER OF STUDENTS IS LESS THAN 40.

e.) Is there a time when they both cost the same? When? How do you know?

X = 40 : BOTH NYC TRAVEL AND LIBERTY CHARTER WOULD COST THE SAME WHEN THE NUMBER OF STUDENTS IS EQUAL TO 40.

2.) Netflix is offering a deal if you subscribe to their dea'. Each month, they will charge a monthly fee of $7. Every movie you rent from Netflix costs $1. The competitor, Red Box, noticed that their sales were declining because more people were joining Netflix. Therefore, they decided to launch a new program where people can subscribe to Red Box. They decided to only charge $3 a month and charge $2 per movie.

a.) Define your variables. Then create equations to represent the total cost for each company for one month.
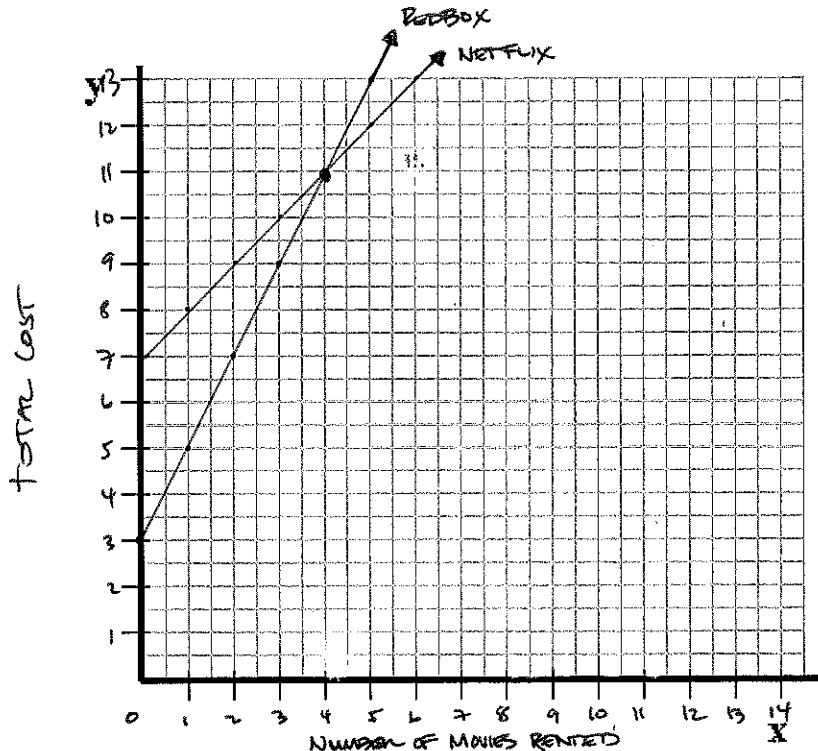
<u>Define variables</u>

x = <u>NUMBER OF MOVIES RENTED</u>

y = <u>TOTAL COST</u>

<u>Equations</u>

Netflix: <u>$y = 1X + 7$</u>

Red Box: <u>$y = 2x + 3$</u>

b.) Graph your equations. Be sure to label and scale your axes appropriately.

c.) When would it be cheaper to go with Netflix? Explain how you know.

$X > 4$: NETFLIX IS CHEAPER WHEN YOU RENT MORE THAN 4 MOVIES A MONTH.

d.) When would it be cheaper to go with Red Box? Explain how you know.

$X < 4$: REDBOX IS CHEAPER WHEN YOU RENT LESS THAN 4 MOVIES A MONTH.

e.) Is there a time when they both cost the same? How do you know?

$X = 4$: NETFLIX AND REDBOX COST THE SAME WHEN YOU RENT 4 MOVIES.