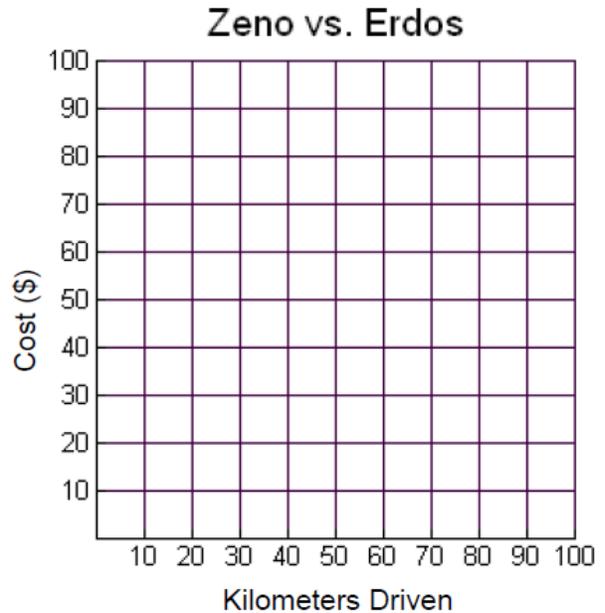# Linear Systems: Day 1 – Renting a Car

Problem A:

Yasser is renting a car. Zeno Car Rental charges $45 for the rental of the car and $0.10 per kilometre driven. Erdos Car Rental charges $35 for the rental of the same car and $0.25 per kilometre driven. Which company should Yasser choose to rent the car from?

To solve the question, complete the table of values, and the graph.

Zeno

Distance (km)	Cost
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Erdos

Distance (km)	Cost
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Zeno vs. Erdos

Cost ($) vs. Kilometers Driven

1. How can the car rental cost and the cost per kilometre be used to draw the graph?

2. What is the point of intersection of the two lines? What does it represent?

3. Under what conditions is it best to rent from Zeno Car Rental?

4. Under what conditions is it best to rent from Erdos Car Rental?

Linear Systems: Day 1 – The Athletic Banquet

Problem B:
The school council is trying to determine where to hold the athletic banquet. The Algebra Ballroom charges an $800 flat fee and $60 per person. The Geometry Hall charges a $1000 flat fee and $55 per person.
Which location should the school council select for the athletic banquet?
To solve the question, complete the table of values, and the graph.
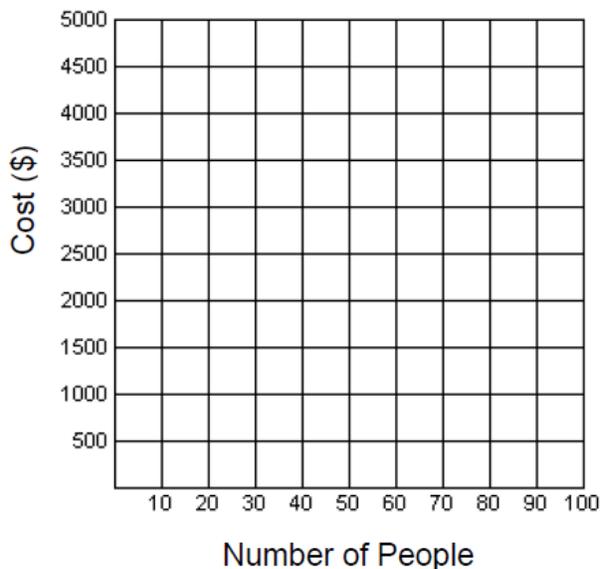
Algebra Ballroom

Number of People	Cost
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Geometry Hall

Number of People	Cost
0	
10	
20	
30	
40	
50	
60	
70	
80	
90	
100	

Algebra Ballroom vs. Geometry Hall

1. How can the flat fee and the per person cost be used to draw the graph?

2. What is the point of intersection of the two lines? What does it represent?

3. Under what conditions is it best to go with Algebra Ballroom?

4. Under what conditions is it best to go with Geometry Hall?
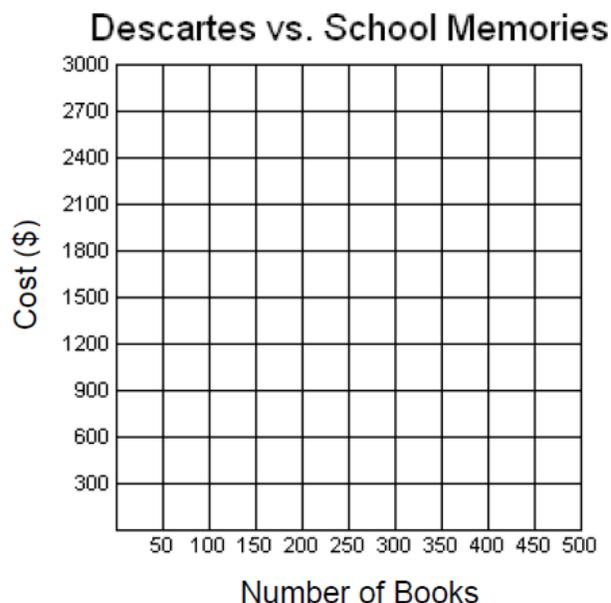
Linear Systems: Day 1 – Yearbooks

Problem C:

The yearbook club is considering two different companies to print the yearbook. The Descartes Publishing Company charges a flat fee of $475 plus $4.50 per book. School Memories charges a flat fee of $550 plus $4.25 per book. Which company should the yearbook club select to print this year's yearbook?

To solve the question complete the table of values, and the graph.

Descartes

Number of Books	Cost
0	
50	
100	
150	
200	
250	
300	
350	
400	
450	
500	

School Memories

Number of Books	Cost
0	
50	
100	
150	
200	
250	
300	
350	
400	
450	
500	

Descartes vs. School Memories

Cost ($) vs. *Number of Books*

1. How can the flat fee and the cost per book be used to draw the graph?

2. What is the point of intersection of the two lines? What does it represent?

3. Under what conditions is it best to go with Descartes Publishing?

4. Under what conditions is it best to go with School Memories?
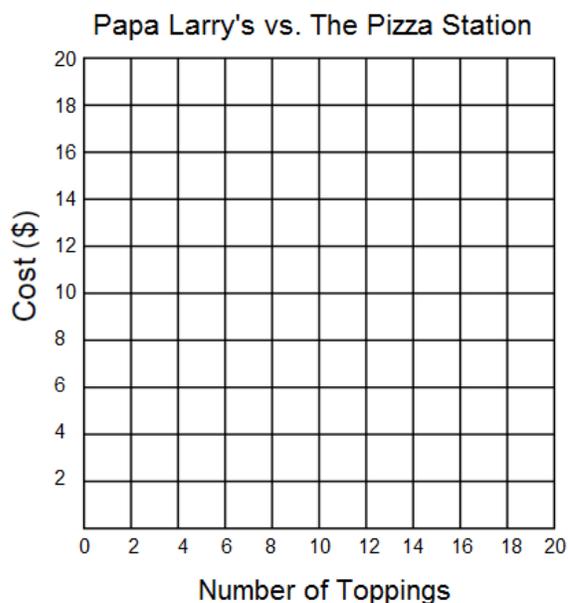
Linear Systems: Day 1 – Pizza

Problem D:

Tony is throwing a pizza party and can't decide where he can the best deal on his pizzas. Papa Larry's charges $11 for a large pizza plus $1 per topping. The Pizza Station charges $8 for a large pizza plus $1.50 per topping. Where should Tony order his pizzas from?
To solve this question complete the tables of values and graph.

Papa Larry's

Number of Toppings	Cost
0	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	

The Pizza Station

Number of Toppings	Cost
0	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	

Papa Larry's vs. The Pizza Station

Cost ($) vs. Number of Toppings

1. How can the flat fee and the cost per topping be used to draw the graph?

2. What is the point of intersection of the two lines? What does it represent?

3. Under what conditions is it best to go with Papa Larry's?

4. Under what conditions is it best to go with The Pizza Station?