

Math 1
System of Equations word problems

Name: _____

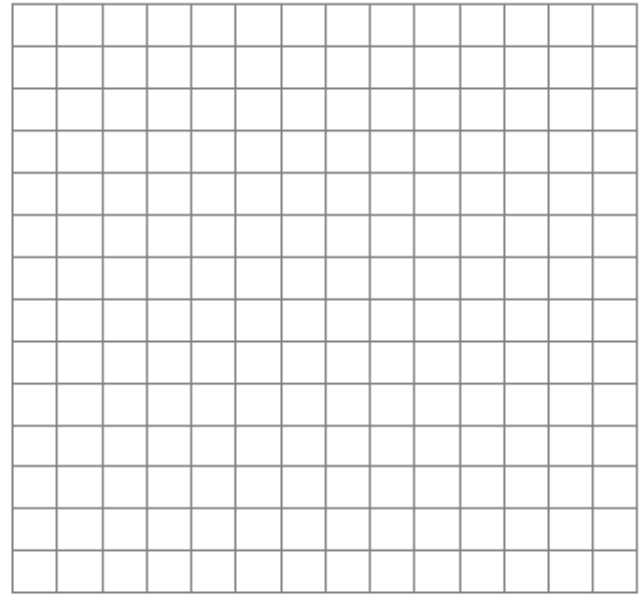
1. There are two businesses that offer internet access. Surf City charges \$3.95 per day plus \$0.05 per minute. Byte to Eat Café charges \$2 per day plus \$0.10 per minute.

a) Write an expression for **each** company to represent the daily charge for any number of minutes.

Surf City _____

Byte to Eat Café _____

- b) Complete the tables below for each company and graph the information on **one** set of axes.



Surf city

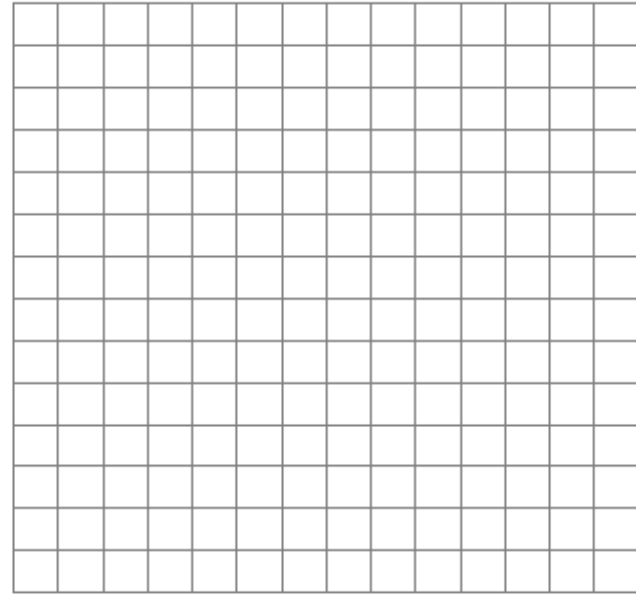
# minutes (x)	0	1	2	3	...	7	...	10	11
Daily Charge (y)									

Byte to Eat Café

# minutes (x)	0	1	2	3	...	7	...	10	11
Daily charge (y)									

- c) After how many minutes will their daily charge be the same? (Find the point of intersection)
- d) Explain what the point of intersection from *part c* means in this context.
- e) Who will be more economical to use? Justify your answer.

2. Charter-boat fishing for walleyes is popular on Lake Erie. The charges for an eight-hour charter trip for 2 companies are the following: Wally's charges \$29 per person with a boat rental of \$200. Pike's charges \$60 per person with a \$50 boat rental



a) Write an expression for **each** company to represent what they will be charging:

Wally's _____

Pike's _____

b) Complete the tables below for each company and graph the information on **one** set of axes.

Wally's

# people (x)	0	1	2	3	...	8	...	10	11
cost (y)									

Pike's

# people (x)	0	1	2	3	...	8	...	10	11
cost (y)									

c) After how many weeks will their costs be the same? (Find the point of intersection)

d) Explain what the point of intersection from *part c* means in this context.

e) Determine which service is more economical for a party of 4 and for a party of 8. Justify your answer.

f) Assuming you want to minimize your costs, under what circumstances would you choose Wally's charter service? Explain.

3. Wendy is starting a catering business and is attempting to figure out who she should be using to transport the food to different locations. She has found two trucking companies that are willing to make sure her food arrives intact. Peter's Pick Up charges \$0.40 per mile and charges a flat fee of \$68. Helen's Haulers charges \$0.65 per mile and charges a flat fee of \$23.

a. Define Variables: $x =$ _____

$y =$ _____

b. System of equations to model the situation:

c. Graph

d. For what distance would the cost of transporting to the produce be the same for both companies? What is that equal cost?

e. Which company charges a lower fee for 160 mile trip? Explain.

