Can a Sister Finally Get a Phone?

Jasmine is looking to get her first cell phone. She has narrowed her choice down to two plans.

Phones R Us

Phones R Us offers unlimited minutes for a fee of $20.00, but charges $5.00 for every two text messages.

1. How much money does every customer pay?

   _____

2. How do the charges differ for each customer?

   _____

3. Write an equation that will work for every customer, regardless of how frequent they text.

Talk with Me

Talk with me offers unlimited minutes for a fee of $40.00, but charges $2.00 for every two text messages.

1. How much money does every customer pay?

   _____

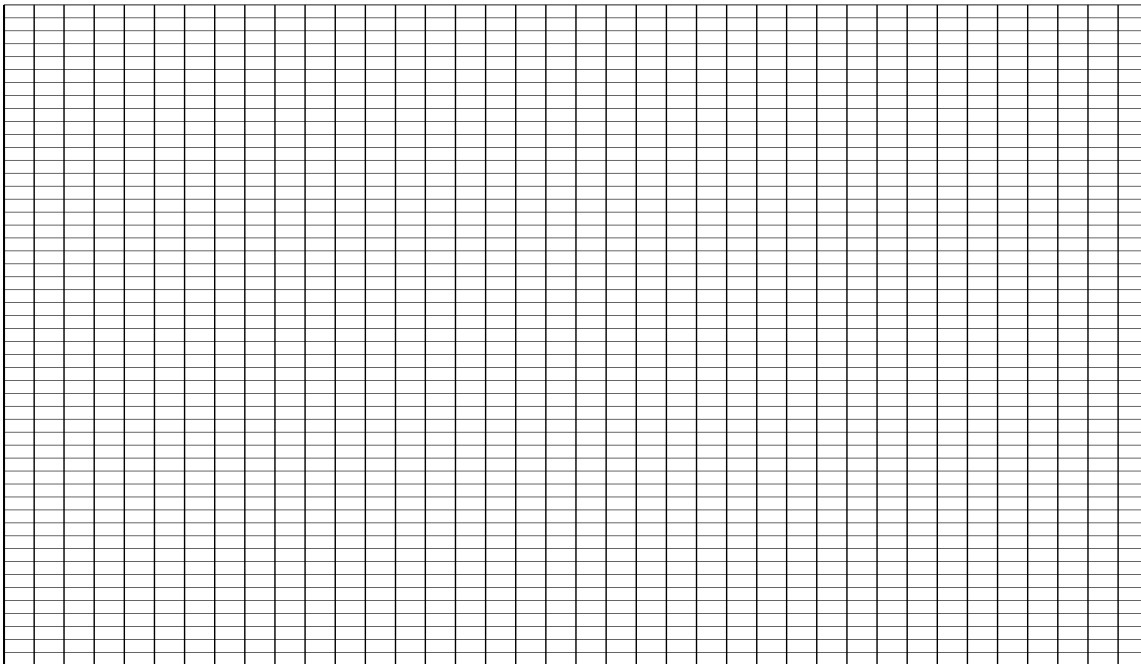2. How do the charges differ for each customer?

   _____

3. Write an equation that will work for every customer, regardless of how frequent they text.

   _____

4. When will the cost of both plans be the same?

When Should I Go Swimming?

The average monthly temperature, t, in degrees Celsius, in the Lake Michigan was modeled by the following function, where t represents the number of months. Hint (t = 0 represents January).

$F(t) = -22\cos\frac{\pi}{6}t + 10$

(a) What is the period? Explain the period in the **context** of the problem.

(b) What is the **maximum temp?** What is the **minimum temp?**

(c) What is the average temperature of Lake Michigan in April?

0	1	2	3	4	5	6	7	8	9	10	11

(d) Sketch the graph of F(t)= $-22\cos\frac{\pi}{6}t + 10$ for $0 \le t \le 12$

(e) Use the graph to determine when the temp is 30°C.

(f)When is the best time to go swimming in Lake Michigan?

Can I Get My New Shoes?

Sammy would love a pair of the new Kevin Durant shoes.   The shoes cost $136.42. His father is willing to pay $106.24 for the gym shoes. Sammy received a coupon for $10.00 to make a purchase at Finish Line . The store has a 15% off sell. Will Sammy be able to get his shoes?

1. What is the total amount of your purchase after the coupon?

2. What is the total amount of purchase after the 15% discount off the original price of the shoes?

3. If only one of the discounts could be used which deal yields the greatest discount?

4. What is the cost of the purchase when the $10 coupon is applied before the 15% discount.

5. What is the cost when 15% discount is applied before the $10 coupon.

6. If both could be applied which order maximizes the discount to get Sammy his new Kevin Durant gym shows?

INVESTIGATION MP3 Player

Craig just got a new MP3 Player and wants to download music. He finds two different sites for downloading music. The first one is FMA and the cost is $1 per song. The second one is Dogmazic and has a $5 monthly fee and cost of $0.50 per song.

1. Complete the chart for cost of buying songs on each site for one month.

Number of Songs	FMA	Dogmazic
0		
1		
2		
3		
4		
5		

2. Describe the pattern you see for each site.

    a.   FMA

    b.   Dogmazic

3. Write an equation for the cost of downloading from:
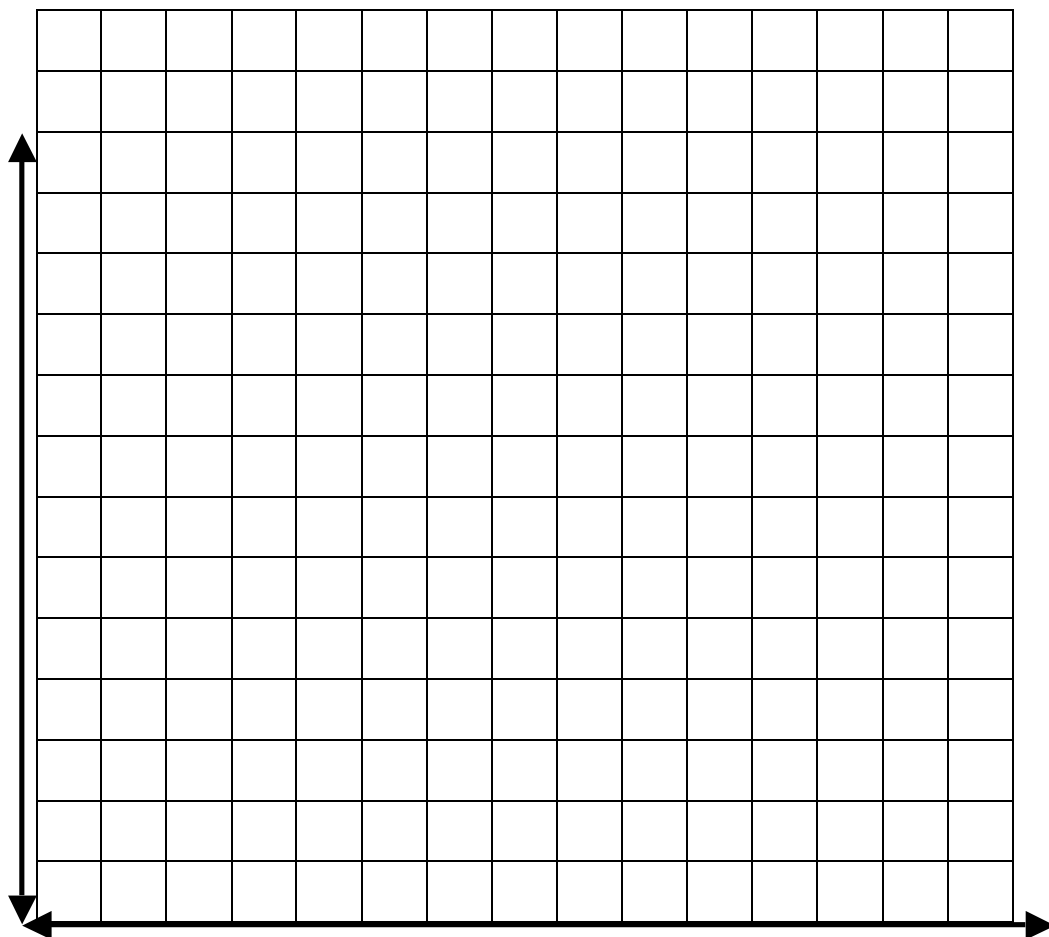
    a.   FMA

    b.   Dogmazic

4. Use your equations in #3 to find the cost of downloading six songs. Do your answers fit the pattern in the table? Explain.

5. Graph each of the equations of the two plans on the same coordinate grid
    a. Where do the graphs intersect?

    b. What does the intersection point represent?
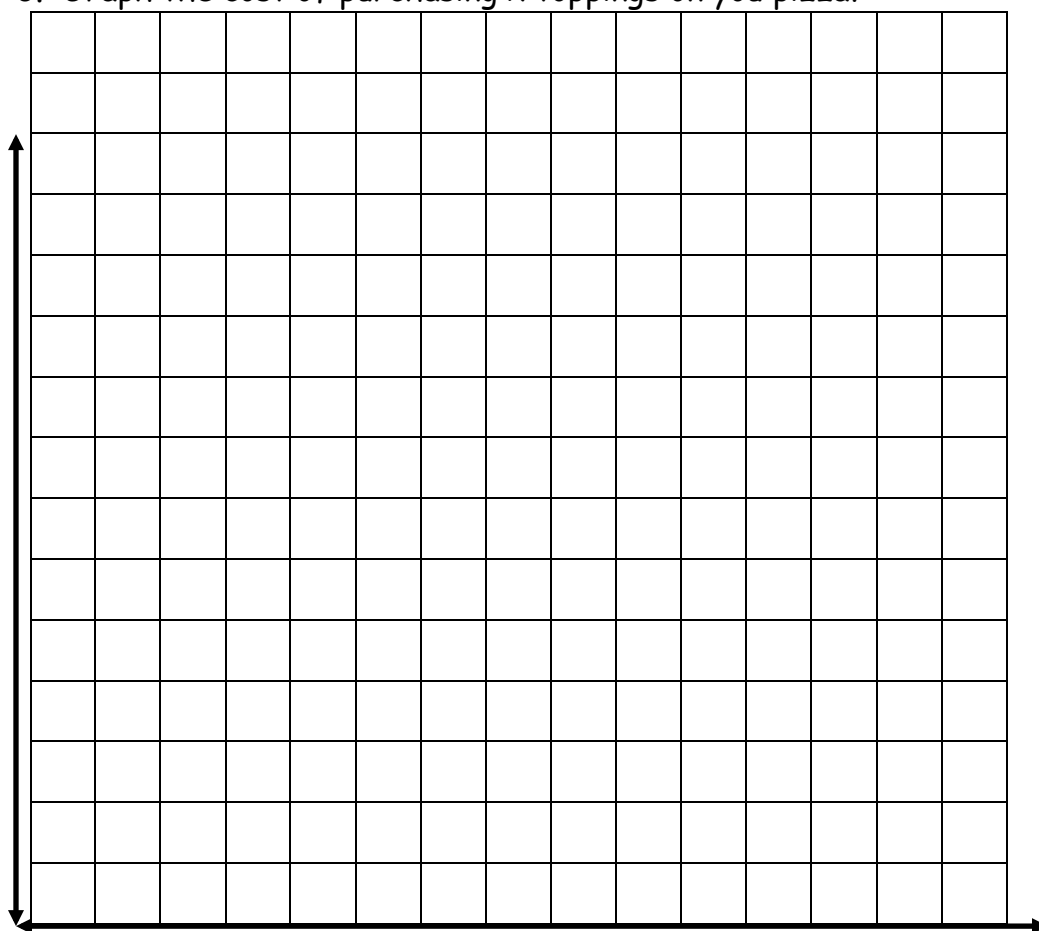
Italian Fiesta Pizzeria

Briana loves Italian Fiesta Pizza. The pizza has a sweet, crunchy taste that she can't get from anywhere else. She will not eat pizza from any other pizza restaurant. In fact, Briana only orders pizza from the Italian Fiesta Pizzeria on 71st, if you would like to try it, the number is (773)555-5555.   Briana only has $17.00, she needs help deciding if she has enough money to get three toppings on her pizza. The flyer she has doesn't specify how much money for each topping.

Medium Pizza with two toppings cost $15.71
Medium Pizza with four toppings cost $18.67

1. How much money does Italian Fiesta charge for each topping?

2. How would she find out how much she would spend for a cheese pizza?

3. Write an equation that represent the cost of buying x toppings on her pizza?

4. Does she have enough money to pay for a pizza with three toppings?

5. If not, how much more money does she need?

6. Graph the cost of purchasing x toppings on you pizza?

7. At what point should the restaurant not charge for additional toppings? Explain your thought.