DAY 1 – Translating English to Math

Translate each phrase into an algebraic expression.

1. a) six more than three times a number

    b) five less than one third a value

    c) fourteen less than the square of a number

    d) the sum of twenty and a number, divided by five

2. a) three times a length

    b) fifteen percent of an area

    c) increase in area by fifteen percent

    d) three more than the product of five and a number

Translate the sentence(s) into an algebraic equation(s).

3. Four less than three times a value, is two

4. One third of a number, increased by two, is one

5. The price of a meal, including thirteen percent tax, is ninety-five dollars and seventy-six cents.

6. The sum of two times the smaller of two consecutive numbers and three times the larger number is 113.

7. The age of a tree tripled and then decreased by 5 years is 25 years

8. N nickels and L loonies give a total value of $5.25

Translate into TWO algebraic equations. Record let statements.

9. The sum of two numbers is 12. The difference is 10.

10. At a school concert, 355 tickets were sold. There were 51 more student tickets sold than adult tickets.

11. Enrico weighs 7 kg more than Julian. The sum of their masses is 183 kg.
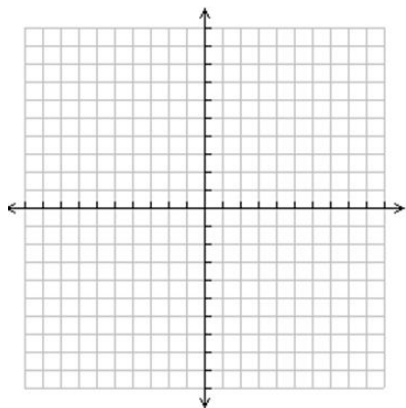
Review Graphing

Plot line 1, then line 2 over top. Find the coordinate point where they meet

12. $y = 2x + 3$
     $y = 4x - 1$

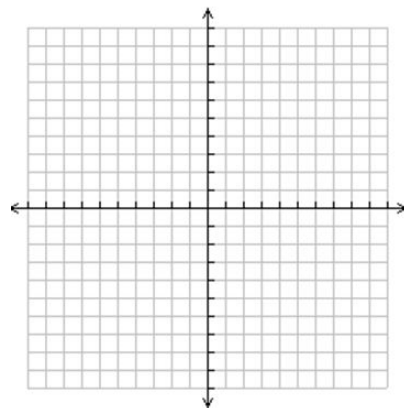   Line 1 m=   b=

    Line 2 m=   b=

13. $y = -x - 7$
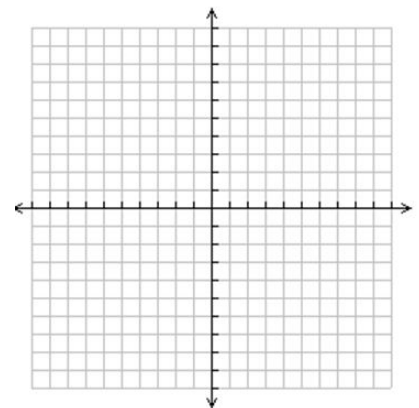 $y = 3x + 5$

    Line 1 m=   b=

    Line 2 m=   b=

14. $y = x + 4$
     $y = -x - 2$

    Line 1 m=   b=

    Line 2 m=   b=

Therefore the meeting point is
(,   )

Therefore the meeting point is
(,   )

Therefore the meeting point is
(,   )

Fill in the blanks. Use all the words/phrases provided on the right (once)

15. The Greek letter delta, Δ, stands for _____	• change
	• negative reciprocal
16. Parallel lines have _____ slopes	• run
	• same
17. Perpendicular lines have _____ slopes	• slope
	• undefined
18. Horizontal lines have _____ slopes	• x
	• y
19. Vertical lines have _____ slopes	• zero
20. The equation of a vertical line is always _____ = #	
21. To find the equation of a line when two points on the line are known, you must first find the _____ of the line	
22. To find the equation of a line when the slope and a point on the line are known, you must find the ____-intercpet of the line	
23. The slope of a line can be found by dividing the rise by the _____.	

DAY 2 – More Translating English to Math

Translate into TWO algebraic equations. Record let statements.

1. Yogi is 6 years older than Michelle. The sum of their ages is 26.

2. The cost of admission to Fantasy World theme park totaled $120.50 for a group of 11 children and 2 adults. The admission totaled $100 for another group consisting of 7 children and 3 adults.

3. Two balloonists, Jim and Chris, are in separate balloons. Jim's balloon is 10 m above the ground and rising at 15 m per minute. Chris's balloon is at 30 m above the ground and rising at 10 m per minute.

4. The Mackenzie, the longest river in Canada, is 1056 km longer than the Yukon, the second-longest river. The total length of the two rivers is 7426 km.

5. A long distance phone service charges $7 a month plus $0.10 per minute of call time. Another plan charges $12 a month. Create equations for ONE month.

6. Candace and Dino run computer repair services. For a service call, Dino charges $50, while Candace charges $40. In addition, they each charge an hourly rate. Dino charges $30/h and Candace charges $35/h

7. At Lisa's Sub Shop, two veggie subs and four roast beef subs cost $34. Five veggie subs and six roast beef subs cost $61.

8. A restaurant that serves a buffet lunch has one price for adults and another price for children under 12. The Lopez family has two adults and three children under 12. Their bill was $49.00. The Zeid family has three adults and one child under 12. Their bill was $45.50.

More Review Graphing

Plot line 1, then line 2 over top. Find the coordinate point where they meet

9. $-2x - y = -8$
        $x + y = 9$

Isolate y in Line 1:

Isolate y in Line 2:

Line 1 m=   b=

Line 2 m=   b=

Therefore the meeting point is
(,   )

10. $x + 2y = -5$
        $3x - y = -1$

Isolate y in Line 1:

Isolate y in Line 2:

Line 1 m=   b=

Line 2 m=   b=

Therefore the meeting point is
(,   )

11. $x + y = 7$
        $x - y = -1$

Isolate y in Line 1:

Isolate y in Line 2:

Line 1 m=   b=

Line 2 m=   b=
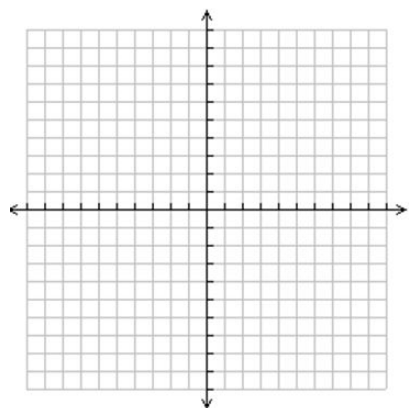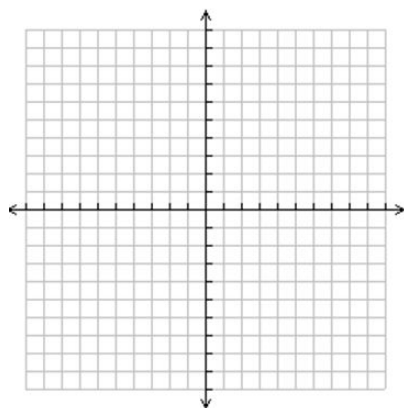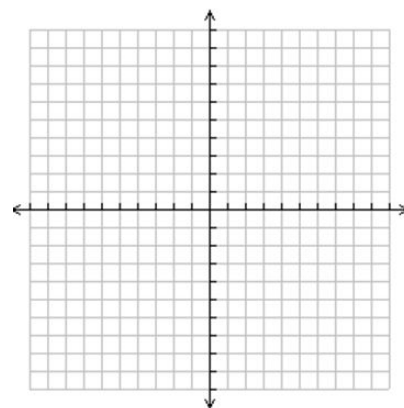
Therefore the meeting point is
(,   )

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.

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

   Tony's:

guests	total cost
0	
20	
40	

   Joey's:

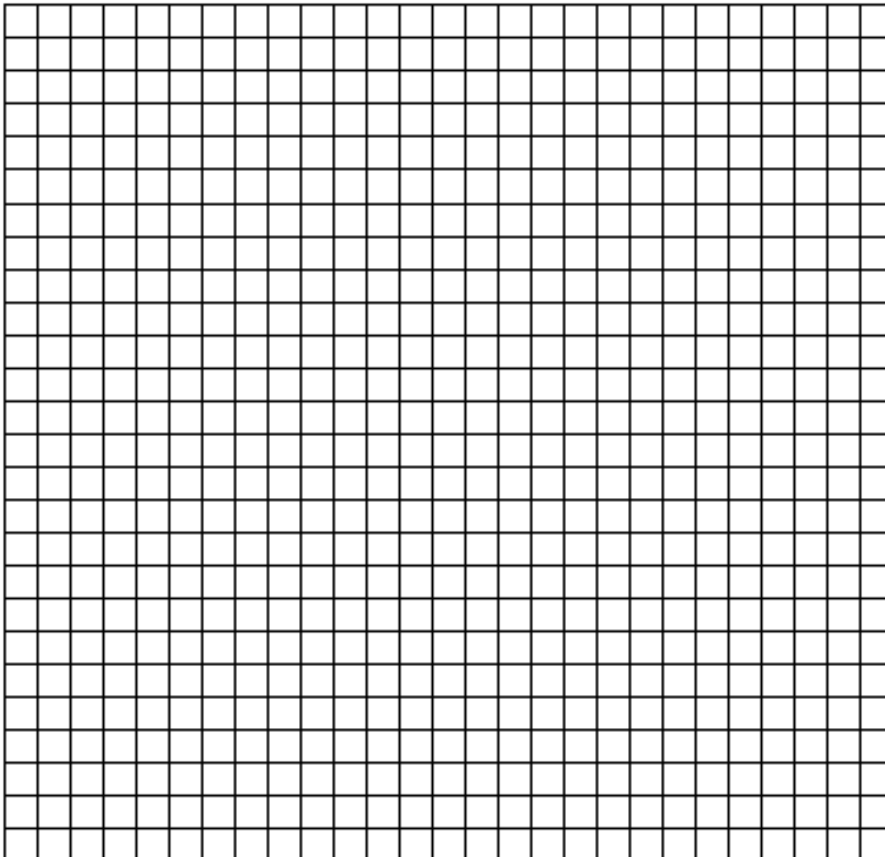 | guests | total cost |
   |--------|------------|
   | 0 | |
   | 20 | |
   | 40 | |

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

   Range for x=   break needed?

   $$\frac{Range\,/\,Max\#}{\#ofSquares} =$$
                                          round up

   Range for y=   break needed?

   $$\frac{Range\,/\,Max\#}{\#ofSquares} =$$
   round up

   d) State the point of intersection.

   e) What does this point of intersection represent?

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

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

Range for x=   break needed?

$$\frac{\#ofSquares}{Range\,/\,Max\#} =$$

round down

Range for y=   break needed?

$$\frac{\#ofSquares}{Range\,/\,Max\#} =$$

round down

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

FunNGames:

games	total cost
0	
2	
4	

Big Vid:

games	total cost
0	
2	
4	

d) State the point of intersection.

e) What does this point of intersection represent?

f) Check your point of intersection in both equations to see if your graph is accurate
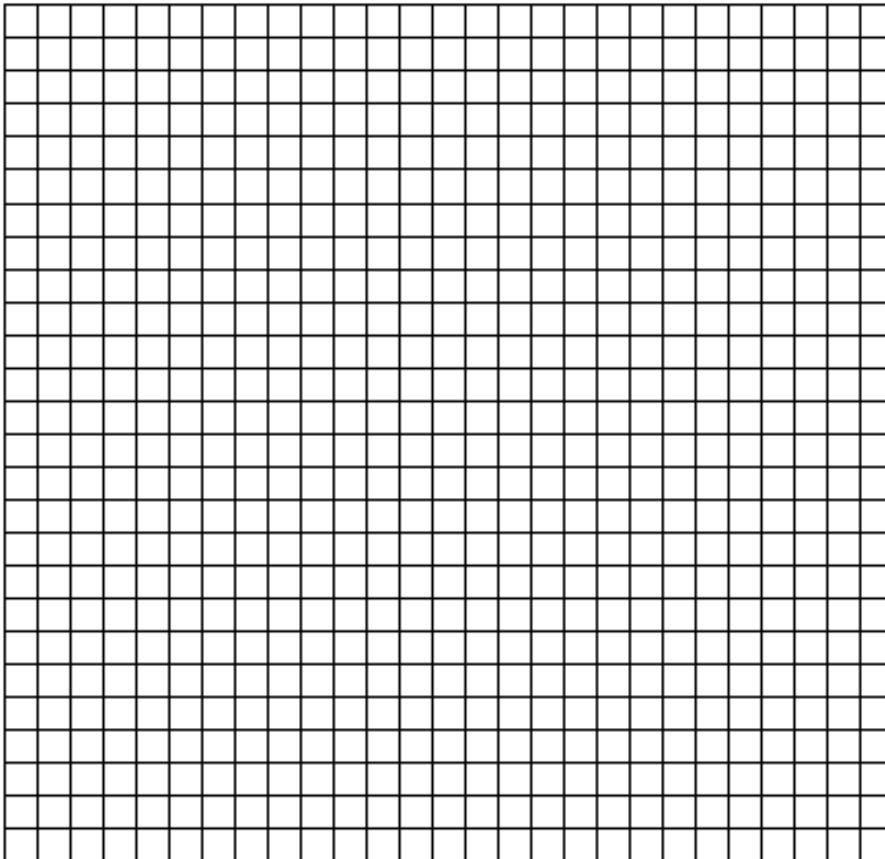
DAY 4 – Elimination Method

Solve the systems and check the solutions.

A.
$$x+4y-5=0$$
$$x+2y=7$$

B.
$$x-3y+2=0$$
$$5y+2x=7$$

C.
$$2x+y=3$$
$$-3y+4x=1$$

Solve the systems and check the solutions.

D.
$$2x+3y+1=0$$
$$y+x=1$$

E.
$$6x+5y=7$$
$$x-3=y$$

F.
$$x-3y=5$$
$$2y+7x=12$$

DAY 5 – More Elimination Method

1. What are the 6 steps of elimination method?

2. Solve the systems and check the solutions.

   A.
   $$3y-5+6x=0$$
   $$x-2y=0$$

   B.
   $$2x-y=5$$
   $$y+3x+9=0$$

For the following problems:
   a) Create let statements
   b) Create TWO equations
   c) Solve the System by Elimination Method
   d) Write therefore statement – answering the question

3.   Silvio invests $8000 for his children's education. He invests part
     of the money in a high-risk bond that pays 5% interest per year,
     and the rest in a lower-risk bond that pays 3.25% per year. After
     one year, he has a total of $312.50 in interest. How much did Silvio
     invest at each rate?

4.   Tickets for a play cost $5 for adults and $3 for children. A total of
     800 tickets are sold and total sales are $3600.

     How many adult tickets are sold?

DAY 6 – Substitution Method

Solve the systems and check the solutions.

A.

$$2x + y = 2$$
$$3x + 2y = 5$$

B.

$$2x - 3y = 6$$
$$2x - y = 7$$

C.

$$x + 2y = 2$$
$$3x + 5y = 4$$

Solve the systems and check the solutions.

D.
$$3x + y = 7$$
$$-x + 2y = 7$$

E.
$$2x + y = 4$$
$$3x - 2y = 13$$

F.
$$y - 2x = 10$$
$$2y + 4x = 100$$

DAY 7 – More Substitution Method

For the following problems:
   a) Create let statements
   b) Create TWO equations
   c) Solve the System By Substitution Method
   d) Write therefore statement – answering the question

1.   Malcolm is twice as old as Sundeep. The sum of their ages is 39. find the ages of the boys.

2.   The cost of printing a magazine is based on a fixed set-up cost and the number of pages to be printed. One printing company charges a $250 set-up fee and $5/page, while a second company charges a $400 set-up fee plus $4/page. What does the point of intersection represent?

Which company should Richard choose to print 175 pages?

For the following problems:
   a) Create let statements
   b) Create TWO equations
   c) Solve the System By ANY Method
   d) Write therefore statement – answering the question

3. Eleni rents a car on two separate occasions. The first time, she pays $180 for 3 days and 150 km. The next time, she pays $180 for 2 days and 400 km.

   Find price per day and price per kilometer.

4. Logan's next fundraising event is dog grooming. A local dog groomer will charge a flat fee of $120 plus $8 per dog. Logan plans to charge customers $16 per dog.
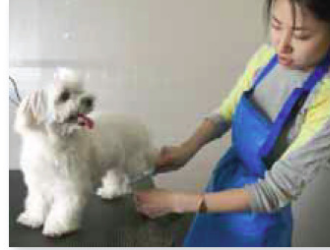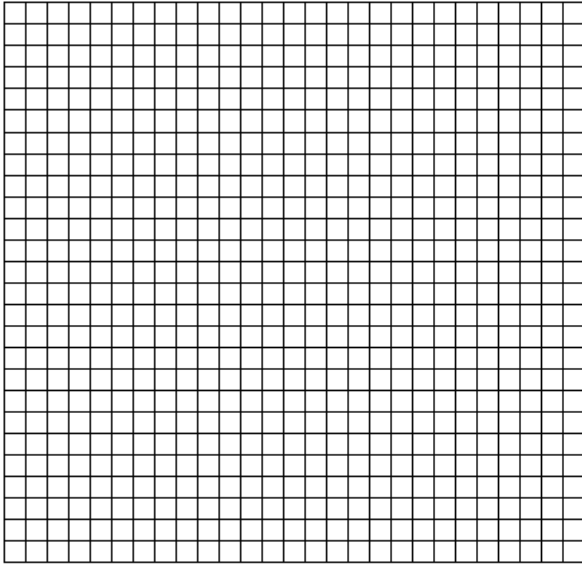

What is the minimum number of customers Logan needs to make money from this event?

Practice TEST

1. Solve the linear system by graphing.

$$y = -2x + 5$$
$$y = \frac{1}{3}x - 2$$

3. Solve the linear system by substitution.

$$x + 3y = 0$$
$$-2x + y = 7$$

2. Solve the linear system by elimination.

$$x + y = 2$$
$$-3x + 2y = -1$$

4. A rectangle has length 1.5 times the width, and perimeter 12 cm. What are the dimensions of the rectangle?

$$12 = 2l + 2w$$
$$l = 1.5w$$

5. Admission to the circus costs $8 for adults and $6 for children. A total of 900 tickets are sold and total sales are $6160.

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

b) How many children attended the circus?

6. The student council wants to hire a DJ for the school dance. Rappin' Ron charges $160 plus $35 per hour. The Pips charge $180 plus $30 per hour.

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

b) How many hours must be played for the costs to be the same for both DJs?

c) Who should the student council hire for the party? Explain why.