

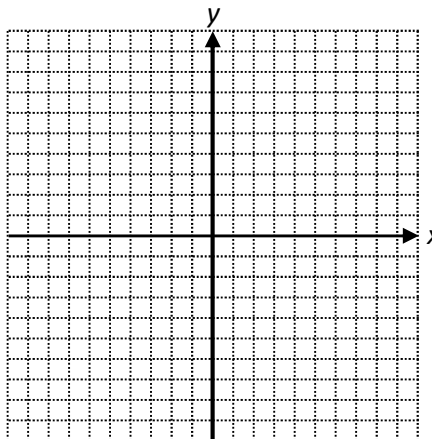
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Linear Relations

1. Create a table of values for the line $y = 4x - 2$ and graph the results below.

x	$Y = 4x - 2$
-2	
-1	
0	
1	
2	

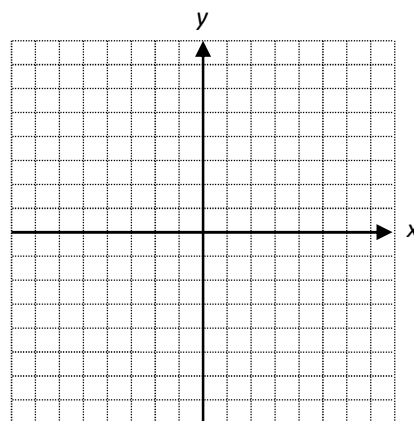
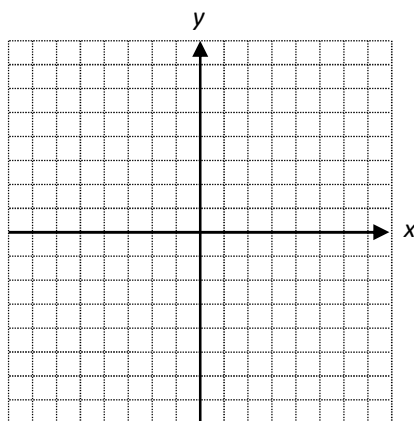
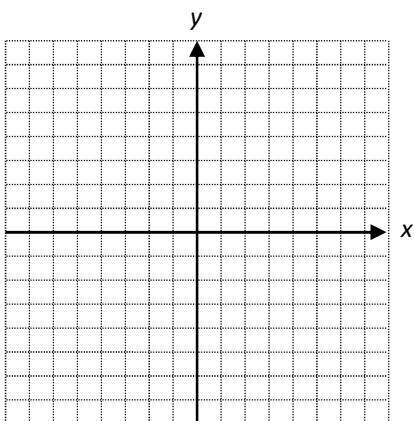


2. Graph the following lines by calculating the x and y intercepts.

a) $y + 8 = -2x$

b) $5x - 2y = 10$

c) $-3x - 2y = 12$

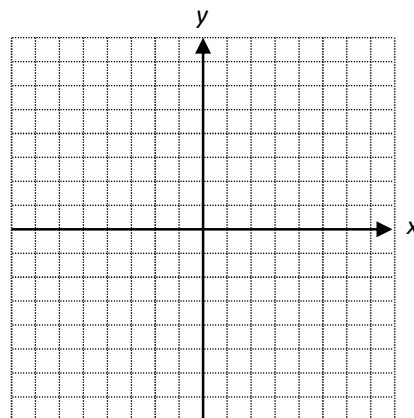
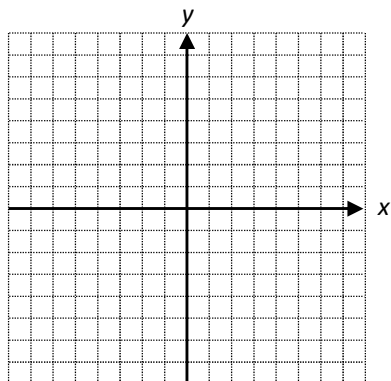
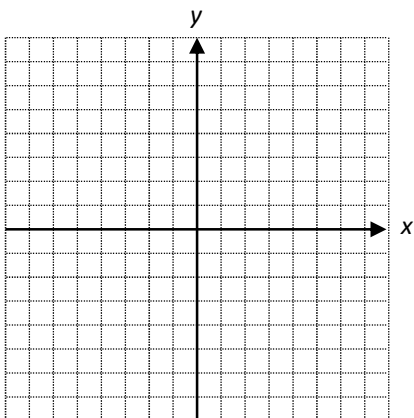


3. Graph the lines using slope y-intercept method.

a) $y = -x + 8$

b) $y = \frac{4}{3}x + 1$

c) $y = -2x + 2$



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4. Calculate the slope of the line AB. A(3, 4) B(2, -2)

5. Determine the equation of the lines

a) slope is 2 and y intercept is 8

b) $m = -3$ and $b = 2$

c) $b = 0$ and $m = -1/3$

d) slope is 2 and passes through (3, 8)

g) the equation is parallel to $y = -7x + 3$

h) the equation is parallel to $y = 5x - 9$

i) the line is perpendicular to $y = -2x + 4$

j) the line is steeper than $y = -3x - 1$

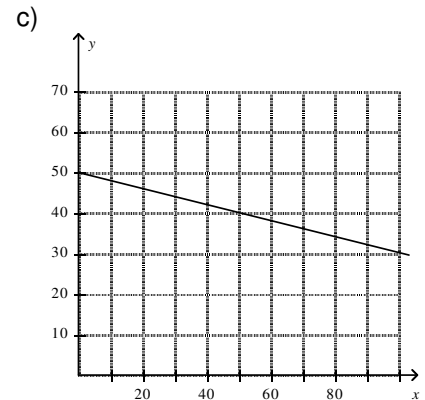
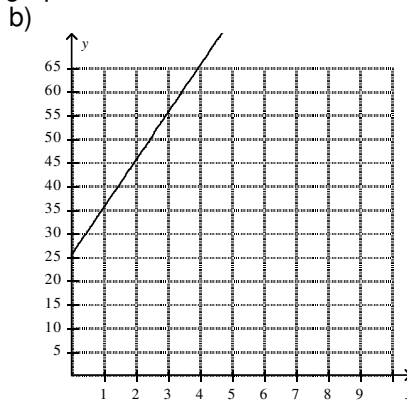
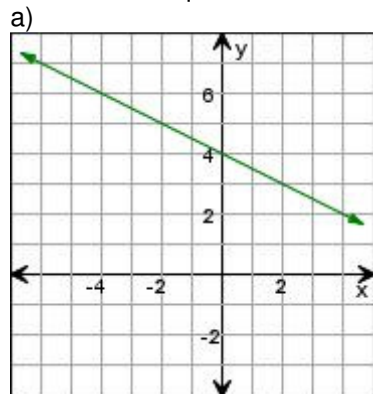
k) passing through through (-3,6) and (9, 0)

e) y-int is -3 and passes through (2, 5)

f) slope is 2.5 and passes through (0, 0)

l) passing through (1, -1) and (5, 5)

6. Find the equation of the line for each graph.



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7. Silvio works in a hair salon. He has 50 regular customers. His customer base is growing at a rate of three new customers per month.

a) Write an equation to describe the total number of customers.

Let m represent:

Let C represent:

Equation _____

b) How long will it be before Silvio has 125 customers?

9. The cost of Jack's cell phone is \$150 plus \$30 per month.

a) Write an equation that describes the cost of Jack's cell phone as the months pass.

Let m represent

Let C represent

Equation: _____

b) How much will Jack spend on the cell phone in 3 years?

8. Paula bought a parrot. The bird had a 10 word vocabulary, but Paula has taught it 3 new words per week.

a) write an equation to represent the number of words the bird can speak

Let w represent :

Let V represent:

Equation _____

b) Determine how large a vocabulary the parrot could have after 1 year (or 52 weeks)

10. Complete the table of values to find the rate of change.

x	y	Rate of change = 1 st differences
0	-2	
1	1	
2	4	
3	7	
4	10	
5	13	

a) What is the relationship between the rate of change and the slope?

b) What is the slope?

c) What is the y intercept?

d) Write the equation of the line that models this linear system.

11. Model the following situations. Include 2 "let" statements and 2 equations.

a) KC Fitness Club charges a flat fee of \$25 a month plus \$5 per visit. Workout Zone charges a flat fee of \$35 a month plus \$3 per visit.

c) George wants to hire a truck to do some moving. Athena's Garage charges \$80 for the day plus \$0.22/km. City Truck Rental charges \$100 for the day and \$0.12/km.

e) Christine plans to go to college in a year and needs to save for tuition. She invests is summer earnings of \$3050, part at 8% interest per year, and part at 7.5% per year. After one year, Christine has earned a total of \$234 in interest.

b) For Nina's retirement party, her family decides to rent a hall for a dinner. Regal Hall costs \$500 for the hall rental and \$15 per guest, and Party Place charges \$410 for the hall and \$18 per guest.

d) Neil's brother has a total of 8 cars and trucks to play with. For his birthday, he wants to double the number of cars he has. If he does he will then have a total of 11 cars and trucks. How many cars and trucks does Neil's brother have now?

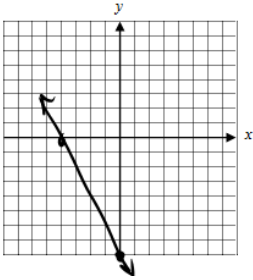
f) Students hold a car wash to raise money for a school trip to the west coast. They charge \$7 per car and \$10 per van. They washed a total of 52 cars and vans and earned \$457.

Answers to Linear Equations

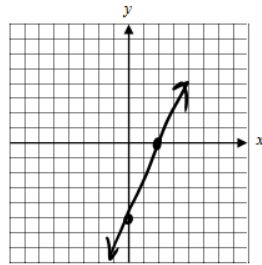
1.

x	Y = 4x - 2
-2	-10
-1	-6
0	-2
1	2
2	6

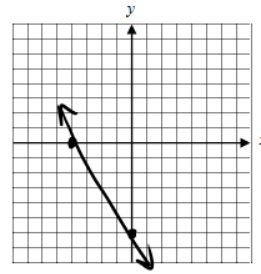
2. a) x int (-4,0) , y int (0, -8)



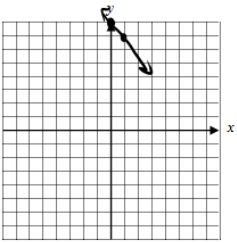
b) x int (2,0) , y int (0, -5)



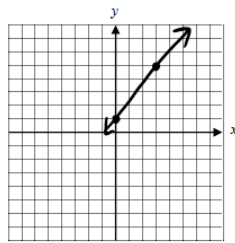
c) x int (-4,0) , y int (0, -6)



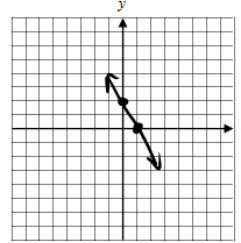
3. a)



b)



c)



4. m=6

5. a) $y=2x+8$ b) $y=-3x+2$ c) $y=-1/3x$ d) $y=2x+2$ e) $y=4x-3$
 f) $y=2.5x$ g) $y=-7x+\#$ h) $y=5x+\#$ i) $y=1/2x+\#$
 j) (pick any number bigger than 3) $y=4x+\#$ k) $y=-0.5x+4.5$ l) $y=1.5x-2.5$

6. a) $y=-1/2x+4$ b) $y=10x+25$ c) $y=-0.2x+50$

7.

a) m represent month
 C represent customers
 $C=50+3m$

b) 25 months

8.

a) w represent weeks
 V represent vocabulary
 $V=10+3w$

b) 14 weeks

9.

a) m represent month
 C represent cost
 $C=150+30m$

b) \$1230

10.

x	y	Rate of change = 1 st differences
0	-2	3
1	1	3
2	4	3
3	7	3
4	10	3
5	13	

- a) rate of change = slope
 b) slope = 3
 c) y-int = -2
 d) $y=3x-2$

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11.a) Let x represent the number of visits.

Let y represent the total cost.

$$y = 5x + 25$$

$$y = 3x + 35$$

b) Let x represent the number of guests.

Let y represent the total cost.

$$y = 15x + 500$$

$$y = 18x + 410$$

c) Let x represent number of kilometres.

Let y represent the total cost of renting the truck.

$$y = 0.22x + 80$$

$$y = 0.12x + 100$$

d) Let x represent number of cars.

Let y represent number of cars.

$$x + y = 8$$

$$2x + y = 11$$

e) Let x represent the amount invested at 8%.

Let y represent the amount invested at 7.5%

$$x + y = 3050$$

$$0.08x + 0.075y = 234$$

f) Let x represent number of cars.

Let y represent number of vans.

$$x + y = 52$$

$$7x + 10y = 457$$