DAY 1

Find the Slope and Y-intercept for Each Equation

1) $y = -\frac{7}{5}x - 3$ slope = _____ y-intercept = _____

2) $y = \frac{2}{3}x + 1$ slope = _____ y-intercept = _____

3) $y = \frac{1}{4}x - 2$ slope = _____ y-intercept = _____

4) $y = \frac{1}{5}x + 5$ slope = _____ y-intercept = _____

5) $-7x + 2y = 8$ slope = _____ y-intercept = _____

6) $x + 3y = 3$ slope = _____ y-intercept = _____

7) $4x + 9y = -9$ slope = _____ y-intercept = _____

8) $-5x + 2y = 6$ slope = _____ y-intercept = _____

9) $-5x + 3y = -9$ slope = _____ y-intercept = _____

10) $-x + 2y = 6$ slope = _____ y-intercept = _____

11. State the equation given slope and y-intercept

a) slope: 3, y-intercept: 7

b) slope: 1, y-intercept: -1

c) slope: $\frac{3}{4}$, y-intercept: $\frac{1}{2}$

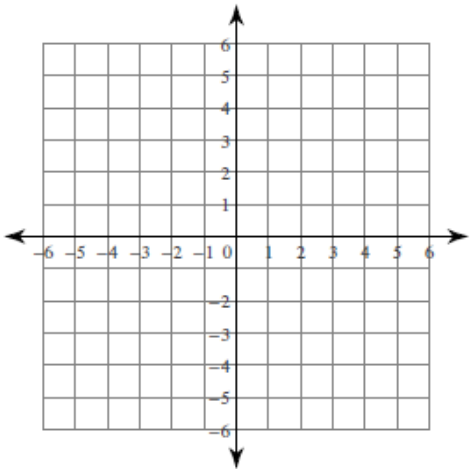
d) slope: -4, y-intercept: 0

e) slope: 0, y-intercept: 4

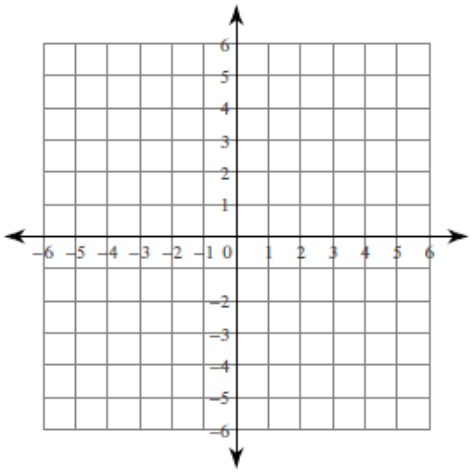
Graphing lines using Slope and Y-intercept

Sketch the graph of each line.

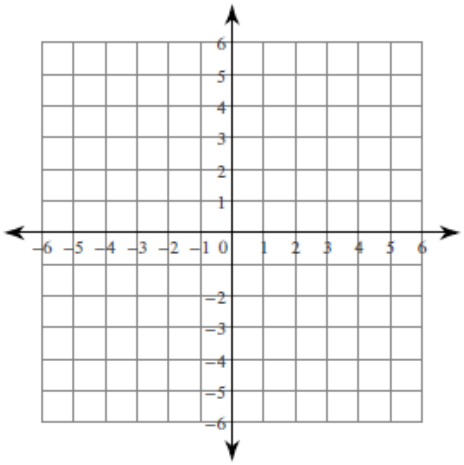
1) $y = \frac{6}{5}x - 2$



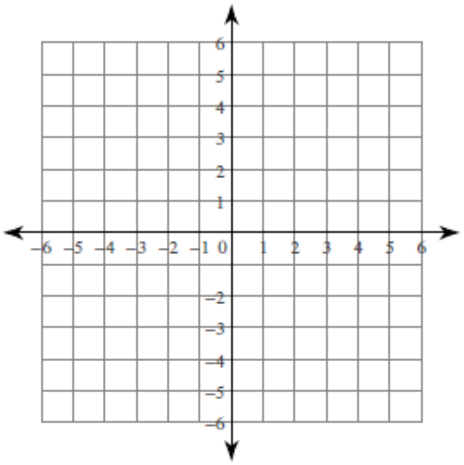
2) $y = \frac{4}{3}x + 1$



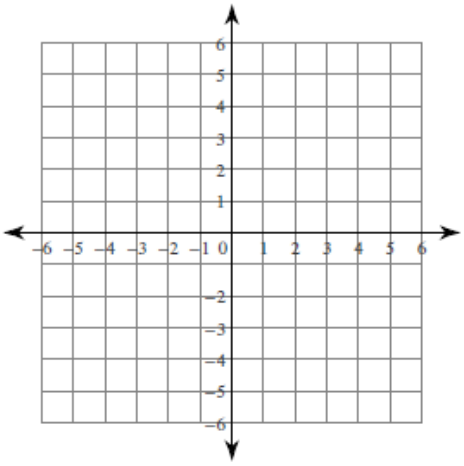
3) $9x + y = 5$



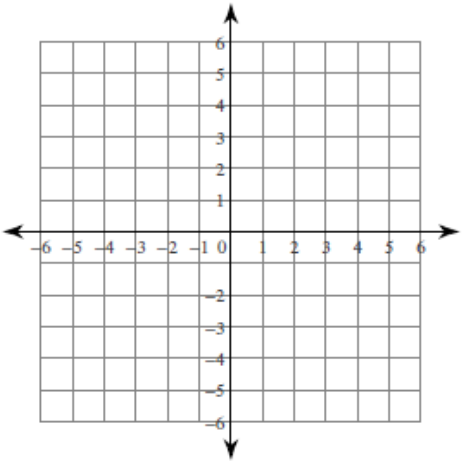
4) $2x + y = 5$



5) $2y = -2$

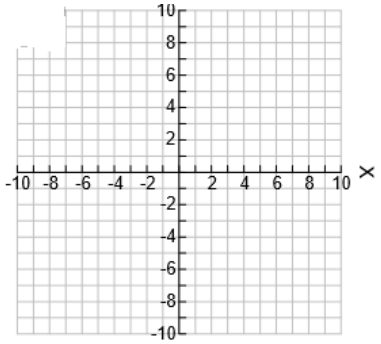


6) $-y = x + 2$

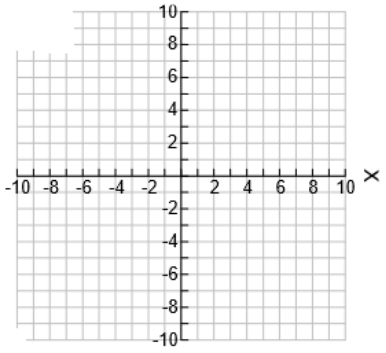


DAY 2 - Graphing Lines using Intercepts

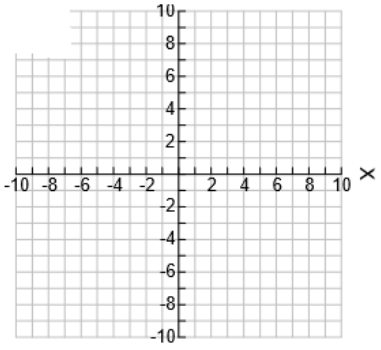
This method is convenient when y is not isolated. Find the intercepts, record them as coordinate points. Plot them. Ensure to extend the line all the way to grid edges. Use a ruler when you can.

1. 

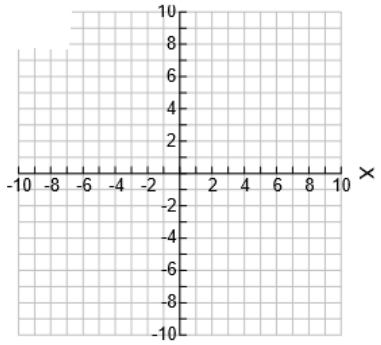
$x - 1 = y$ x-int: $y = 0$ y-int: $x = 0$

2. 

$4x - 3y = 12$ x-int y-int

3. 

$7x + 2y = 6$ x-int y-int

4. 

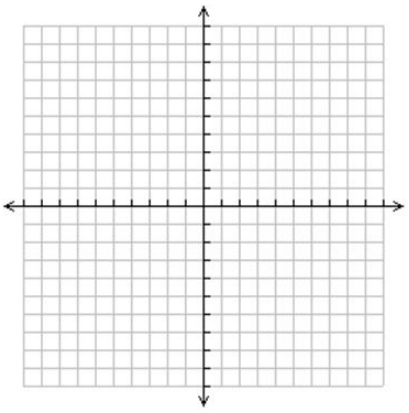
$2x - 1 = y$ x-int y-int

Graph Lines using Table of Values

1. Graph the following

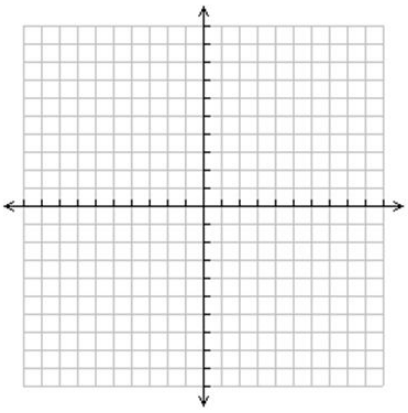
a)

x	y
0	−3
1	−1
2	1
3	3
4	5



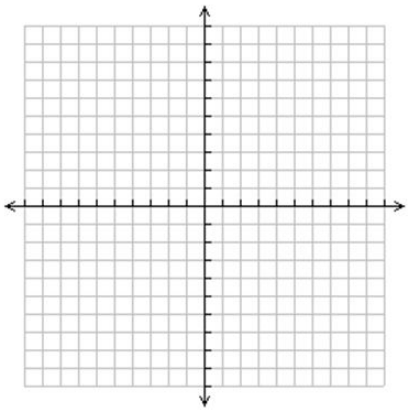
b)

x	y
0	7
1	4
2	1
3	−2
4	−5



c)

x	y
−4	1
−2	2
0	3
2	4
4	5



2. Graph the relation of each equation using table of values for x = -2, -1, 0, 1, 2

a) $y = 2x + 5$

b) $y = x + 3$

c) $y = 4x - 2$

a)

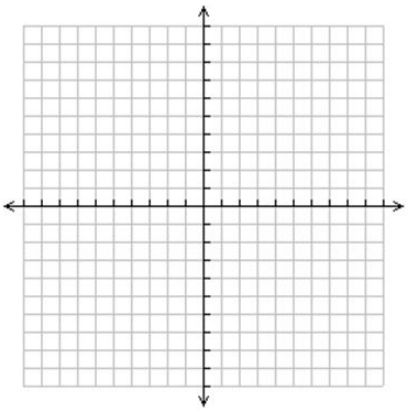
X	Y

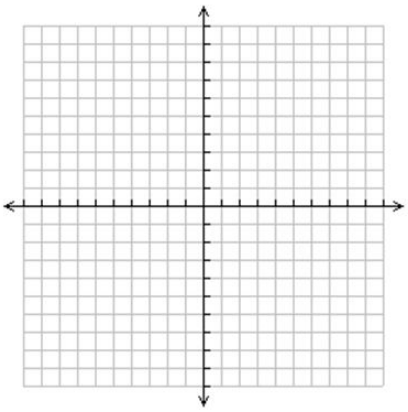
b)

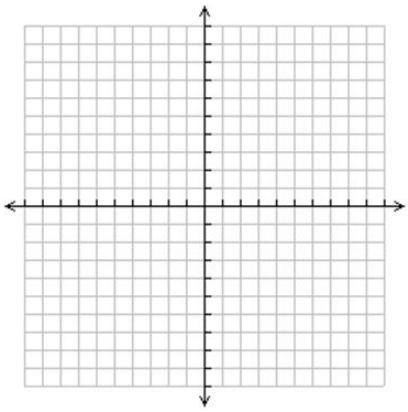
X	Y

c)

X	Y







DAY 3 - Find Equation of Lines from Word Problems

1. To purchase a fishing license, it costs $25/year plus a one-time $5 fee for processing the application. Assign variables and state the equation that describes this.

Let_____

Let_____

r.o.c= initial=

Equation:

2. A medium pizza costs a flat rate of $9. Each additional topping cost is $0.65. Assign variables and state the equation that describes this.

3. Brian's car costs him $4000 plus $0.20 per km every year. Assign variables and state the equation that describes this. (for one year)

4. Mike earns $225 each week. Assign variables and state the equation that describes this.

5. A club charges each member $24 plus $2 per each exercise class. Assign variables and state the equation that describes this.

6. Each chocolate box costs $5.99. Assign variables and state the equation that describes this.

7. Tim wants air conditioning in his room. The air conditioner costs $45. Each day the electricity costs $2.
   a. Assign variables and state the equation that describes this.
   b. If Tim spent $85 to cool his room, how many days did he run the AC?

8. Sam charges a $5 base fee plus $20/hr to fix jewelry. Assign variables and state the equation that describes this.

9. Each minute of a song in MP3 format takes up approximately 1.4 MB of disk space. Assign variables and state the equation that describes this.

10.
Ms. Underwood wants to send cookies to her nephew. The post office charges $5.50 to package the item before delivery. Each box sent costs an extra $1.25 added to the starting charge.
Assign variables and state the equation that describes this.

11. The submarine starts at 3000 kPa of pressure below the surface of water. As it rises the underwater pressure in the ocean decreases by about 51 kPa for every 5 m of depth. Assign variables and state the equation that describes this.

12. Hercules Fitness Club has two different rates for a kick-boxing class, one for members and one for non-members. For members of the fitness club, the yearly membership is $75 and the cost of each class is $10. For non-members of the club the cost of each class is $25. Write down the two equations for these relationships. Identify variables you are using.

13. Students are planning a ski trip. They have a choice between two packages. The first package costs $630 per student. It includes 2 meals a day and accommodation for 9 days. The second package costs $720 per student. It includes 3 meals a day and accommodation for 9 days. Write down the two equations for these relationships. Identify variables you are using.

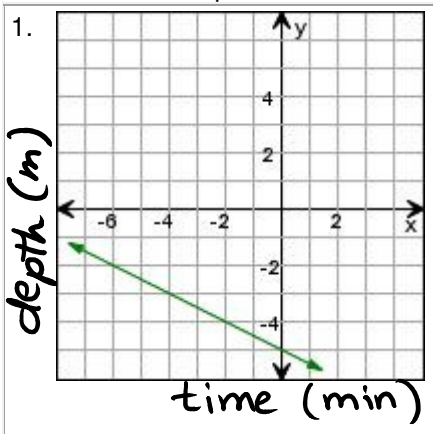
14. Tammy wants to rent a movie from the video store. The membership fee is $15 per month, plus $4 per movie.
    a. Assign variables and state the equation that describes this.
    b. If Tammy spent $135 at the store in one month, how many videos did she rent?

DAY 4 - Slope from Graphs, recording as Rate of Change

Record the slope and use units to write it as a rate of change.

Note: This is just practice, the numbers you'll get will not be realistic

1.



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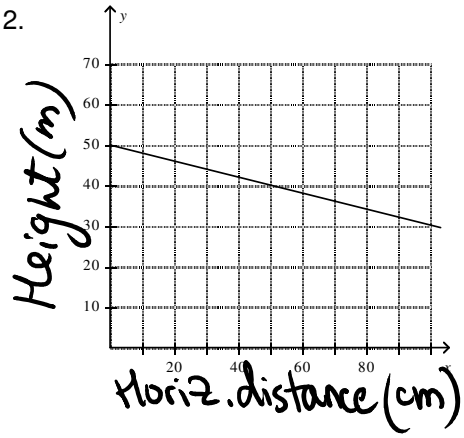

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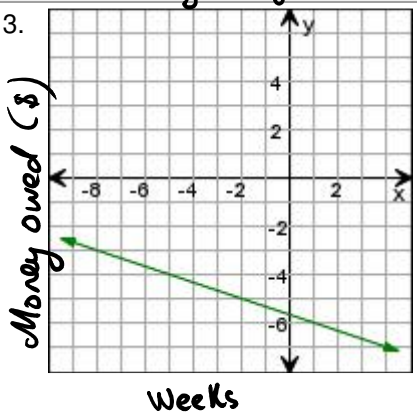

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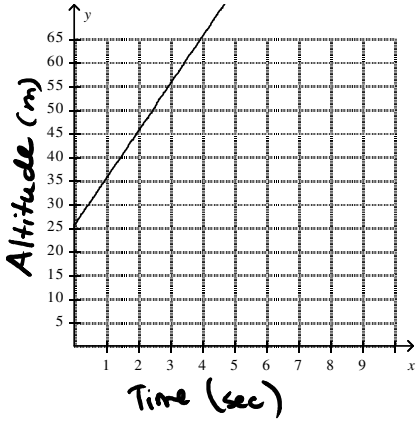

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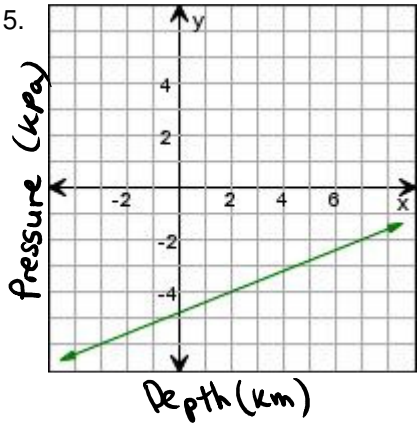

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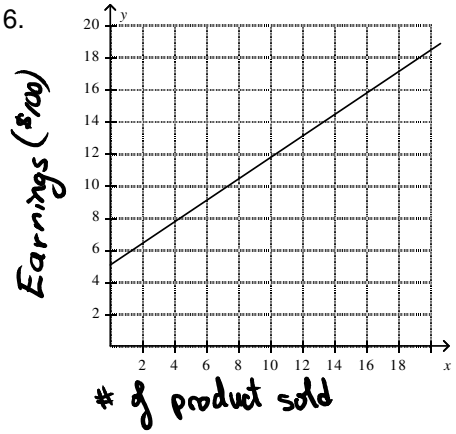

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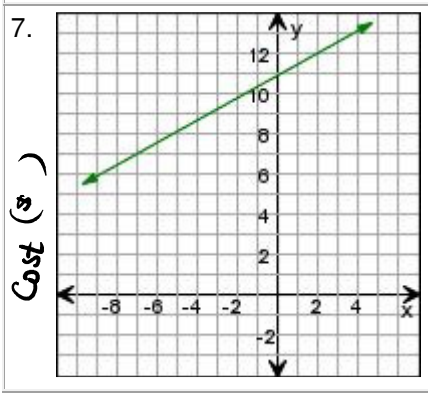
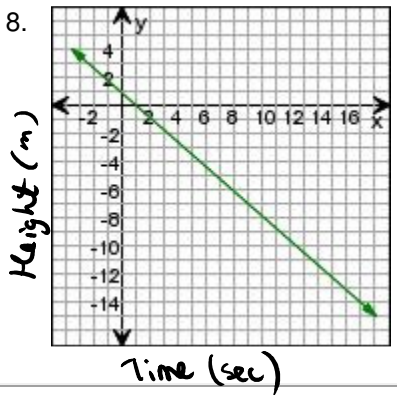
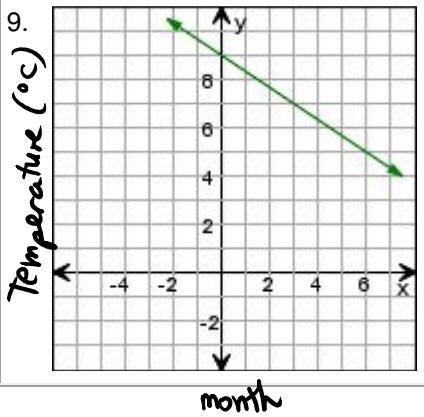


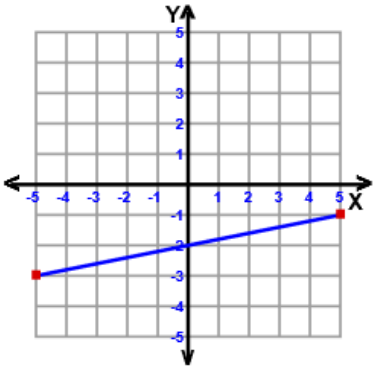
8.



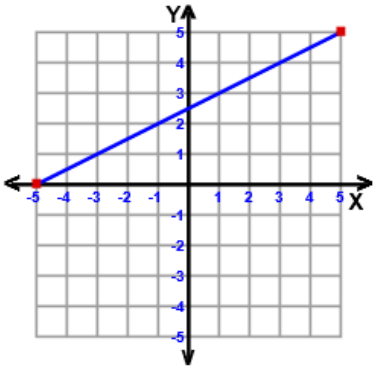
9.



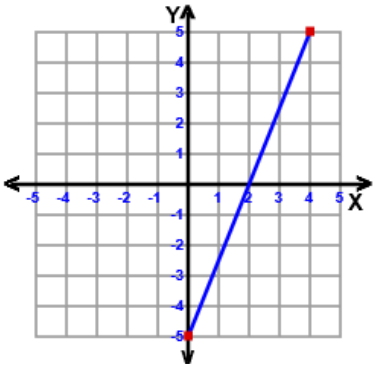
Find the Slope of Each Line

1) 

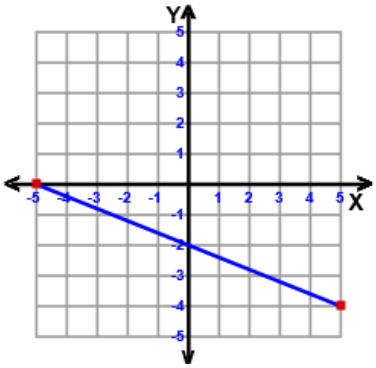
slope = _____

2) 

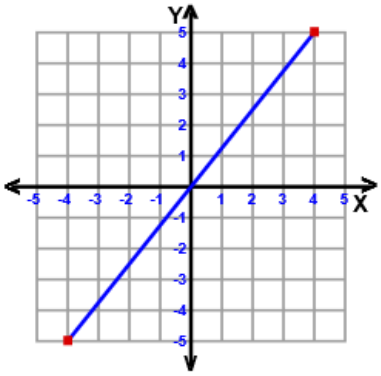
slope = _____

3) 

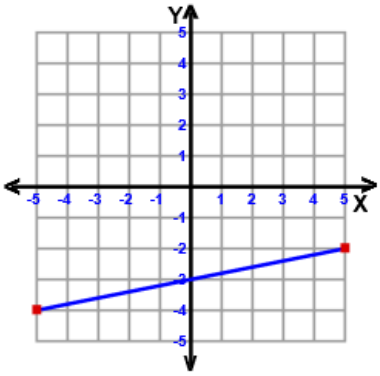
slope = _____

4) 

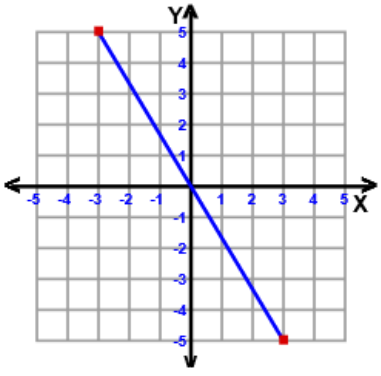
slope = _____

5) 

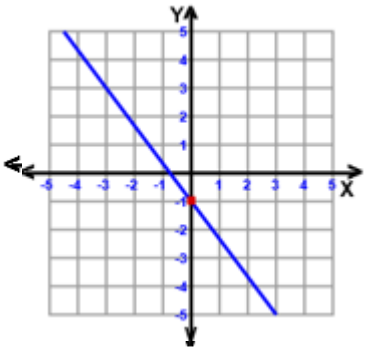
slope = _____

6) 

slope = _____

7) 

slope = _____

8) 

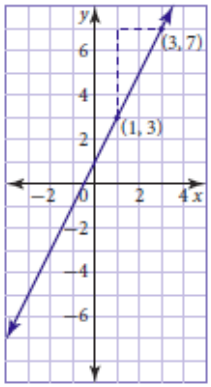
slope = _____

9). For all of the above, add in the y-intercept, then record equation of each line in y=mx+b form

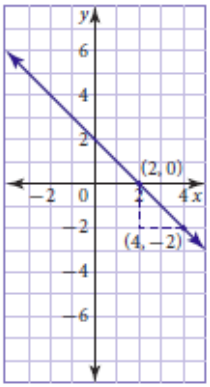
DAY 5 - Find Equations of Lines from Graphs

1. Write the equation for each line by first determining the slope and the y-intercept.

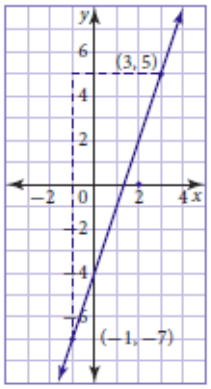
a)



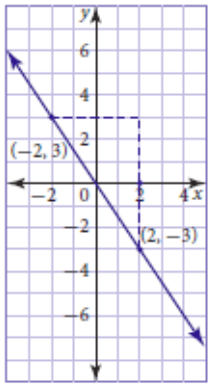
b)



c)

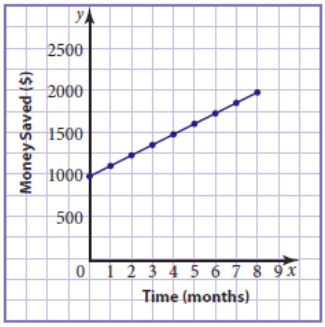


d)



2. A graph of Marina's college fund is shown.

a) What is the slope of this line?
b) What does the slope represent?
c) What is the y-intercept?
d) What does this number represent?
e) Write an equation that represents the amount in Marina's college fund.

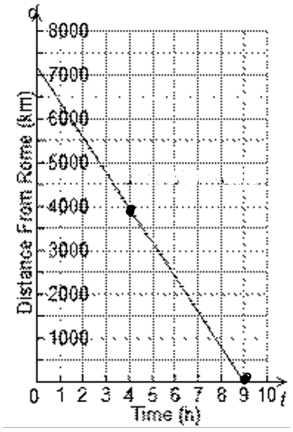


3. When Jim travels long distances, his average speed is approximately 90 km/h. On a return trip from Thunder Bay, 1500 km from home, Jim uses the equation $y = 1500 - 90x$ to determine his distance from home after x hours of driving.

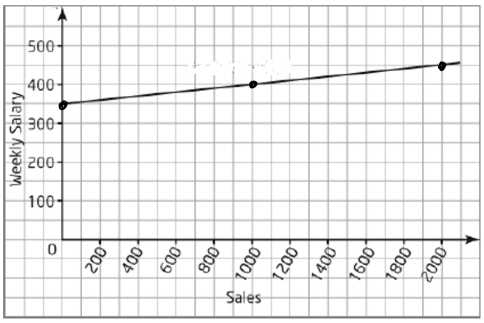
a) What is the y-intercept of this equation? What does this number represent?
b) What is the slope of this equation? What does this number represent?

4. Find the equations from the graphs then state what the y-intercept and slope represent

a. A flight from Toronto to Rome can be modelled by the following graph. Find the equation of the line, then use *d* as the distance, in kilometers, from Rome and *t* as the time, in hours, that the plane has been flying. Then state what the y-intercept and slope represent

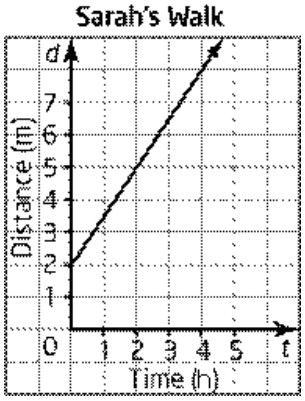


b. Mario sells electronics at Big Box Electronics Store. He is paid a salary of $350 a week plus 5% commission on his sales. Find the equation of the line, then use *E* as the earnings and *p* as price of items he sells. Then state what the y-intercept and slope represent



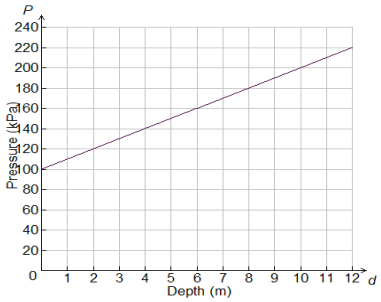
5. Find the initial value and rate of change for each graph then write down an equation.

a. The distance-time graph illustrates Sarah's walk in front of a motion sensor:



$d =$ _____t + _____

b. For safety reasons, divers need to be aware of the pressure as they dive. At a depth of 4 m, the pressure is 140 kPa (kilopascals) and at 9 m it is 190 kPa.



$P =$ _____$d +$ _____

DAY 6 - Find Equations of Lines from different given info

Find equation of lines given slope or y-int and a point

1. b=7, point (1,3)

2. b= – 3, point (2, 11)

3. $m = \frac{2}{5}$, point (5, 2)

4. $m = \frac{1}{6}$, point (8, - 3)

5. $m = -\frac{3}{4}$, point (- 4, -1)

6. $m = \frac{1}{5}$, point (3, 4)

Find equation of lines given table

7.

Hours Worked	Total Earnings ($)
0	0
1	8
2	16
3	24
4	32
5	40

8.

Carrie's earnings increase for every T-Shirt she sells. Her potential earnings are shown in the table.

T-Shirts Sold	0	1	2	3	4
Earnings ($)	0	5	10	15	20

9.

Number of Messages Sent	Total Cost ($)
0	0
1	0.15
2	0.30
3	0.45

10.

Number of Toppings	0	1	2	3	4
Cost ($)	12	13.75	15.5	17.25	19

11.

Bim picked peaches last summer. His potential earnings are displayed in the table.

Baskets Picked	1	2	3	4	5	6
Earnings ($)	$1.50	$3.00	$4.50	$6.00	$7.50	$9.00

12.

Jim drives a tractor-trailer. His job takes him throughout eastern Canada and much of the eastern United States. He earns $0.45 for each kilometre he drives.

a) complete the table of values.

Distance Driven (km)	0	100	200	300	400
Earnings ($)					

b) Find the rate of change

c) Find the equation of the line

DAY 7 - More Finding the Equation

Find equation of lines given two points

1. (-3, -1) and (0, -2)

2. (0, 5) and (-2, -4)

3. (-5, 4) and (-6, 0)

4. (2, 7) and (3, 10)

5. (4,5) and (8, 3)

6. (3,6) and (-9, 5)

FIND THE EQUATION OF THE LINE

7. slope: 3, y-intercept: 8

8. $m = 0.5$, G(0, 5)

9. $m = 3$, F(−4, −5)

10. $m = -\frac{3}{2}$, H(−3, 0)

Write the equation from a word problem. Don't forget to do let statements

11. A machine salesperson earns a base salary of $40,000 plus a commission of $300 for every machine he sells. Write an equation

12. Lin is tracking the progress of her plant's growth. Today the plant is 5 cm high. The plant grows 1.5 cm per day.

13. Mr. Thompson is on a diet. He currently weighs 260 pounds. He loses 4 pounds per month.

14. Paul opens a savings account with $350. He saves $150 per month.

15. The population of Bay Village is 35,000 today. Every year the population of Bay Village increases by 750 people.

DAY 8 - Properties of Slope

1. Write the equation of the horizontal line that passes through the point (-2, 10)

2. Write the equation of the vertical line that passes through the point (4, 8)

PRACTICE parallel lines:

3. Write the equation of a line that is parallel to $y = -6x + 2$ and that has a y-intercept of 6

4. Write the equation of a line that is parallel to $y = 2x + 3$ and that has a y-intercept of 12

5. Find the equation of a line parallel to $y = 3x + 1$ that goes through the point (2,8)

6. Find the equation of a line parallel to $y = 2x + 7$ and that goes through the point (4 , 12)

PRACTICE perpendicular lines:

7. Are $y = 3x + 7$ and $y = 3x - 8$ perpendicular to each other? YES or NO

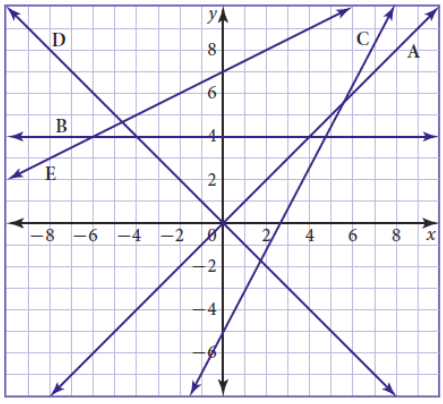
8. Are $y = \frac{2}{3}x - 2$ and $y = -\frac{3}{2}x + 1$ perpendicular to each other? YES or NO

9. Write the equation of a line that is perpendicular to y = -5x + 2 that passes through the point (10,6)?

10. Write the equation of a line that is perpendicular to $y = \frac{1}{2}x - 6$ that passes through the point (6,4)

11. Write the equation of a line that is perpendicular to $y = -\frac{1}{8}x + 2$ that passes through the point (-4, 2).

12. For each line on the graph, indicate which of the equations listed below represents the line. Match



a) $y = 4$ **b)** $y = -x$

c) $y = x$ **d)** $y = \frac{1}{2}x + 7$

e) $y = 2x - 5$

13. Write the equation of a line that has a steeper slope than the given line.

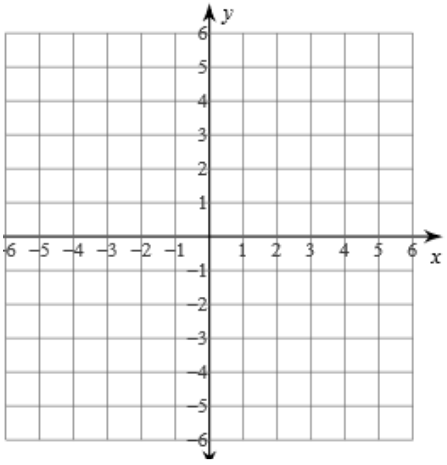
a) $y = 3x + 2$ **b)** $y = x$

14. Write the equation of a line that is less steep than the given line.

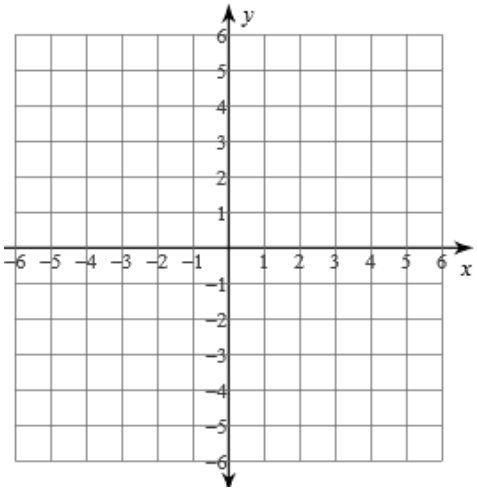
a) $y = -x$ **b)** $y = -4.5 + 2.5x$

DAY 9 - Graphing Lines using the Slope and Y-intercept

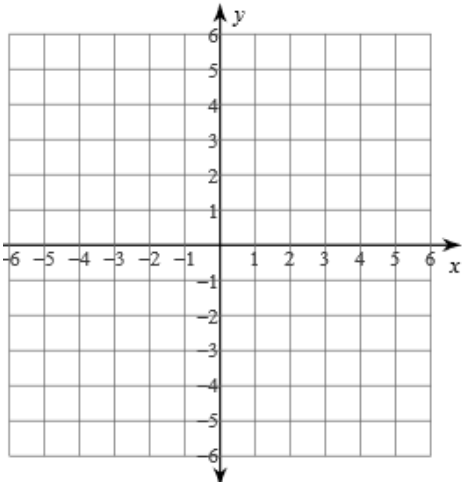
1. $y = \frac{1}{4}x - 1$



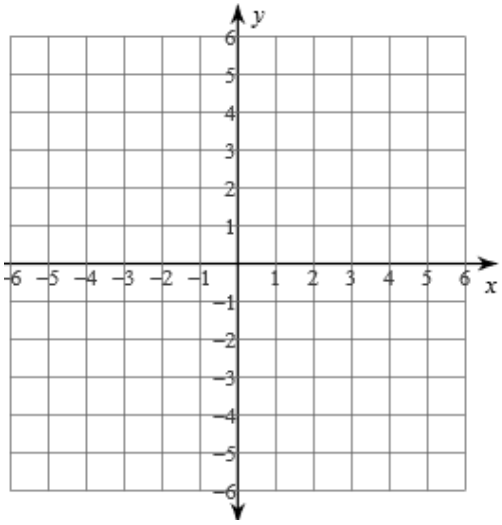
2. $y = -x + 2$



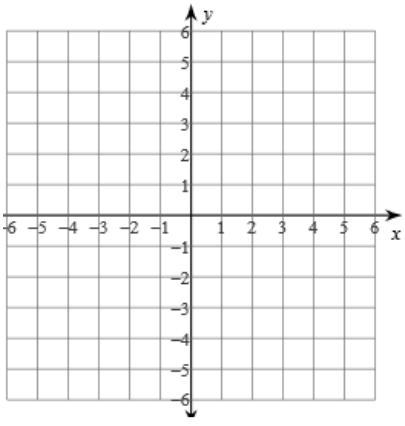
3. $y = \frac{4}{3}x - 4$



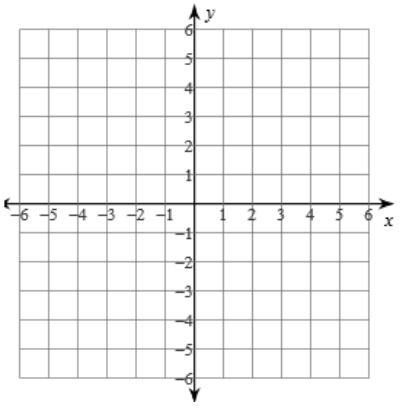
4. $y = -3x - 3$



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



6. $y = \frac{6}{5}x + 5$



Choosing a Scale for a Graph

1.

Since Jim is on the road a lot, he has a PDA phone with Internet access and a calling package that allows him to phone anywhere in North America. Jim paid $575 for the phone and he pays $55 per month for his Internet calling package.

a) Create a table of values

b) Draw a graph of the total amount that Jim has spent for this special phone for ½ year.

c) What is the equation of the line that models the total cost?

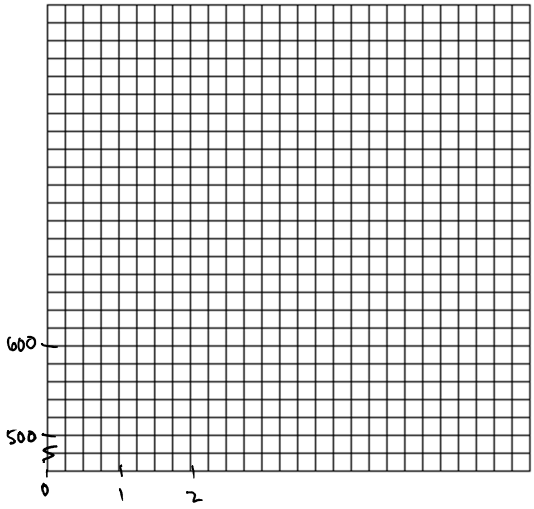
2.

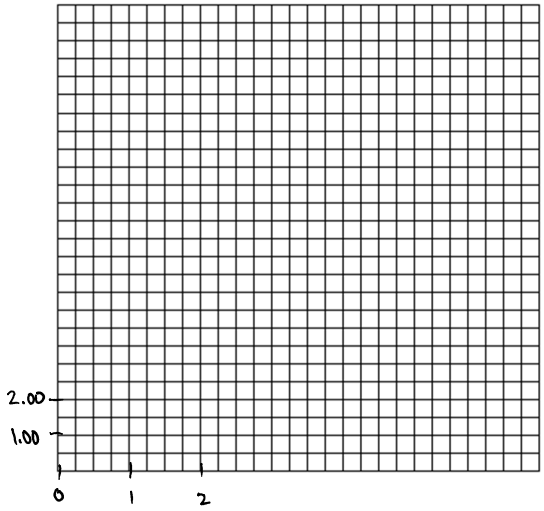
A small pizza at Monster Pizza costs $3.50 plus $0.75 per topping.

a) Create a table of values

b) Create a graph ot the linear relation that models the cost for up to 5 toppings.

c) What is the equation of the line that models the total cost?



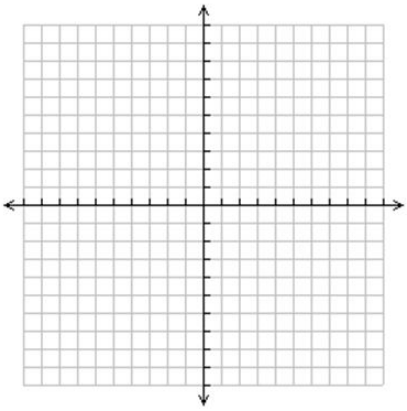


Practice TEST #1

Graph using table of values

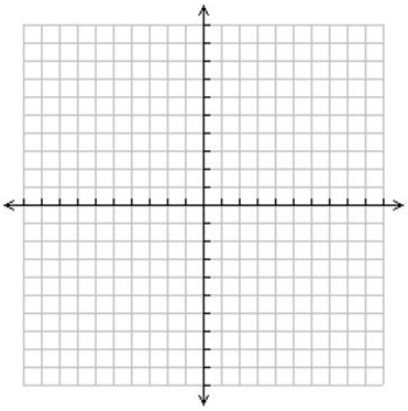
1. $y = 3x + 1$

X	Y



Graph using slope and y-intercept

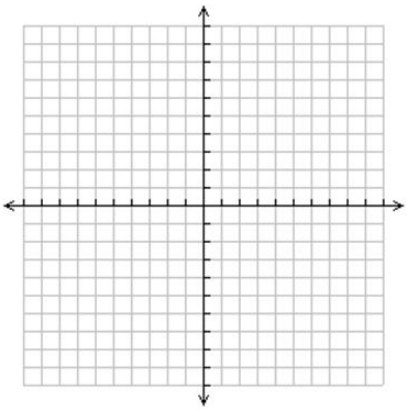
2. $y = -\frac{1}{2}x + 8$



Graph using x and y intercepts

3. $6x + 2y - 4 = 0$

x-int y-int



Find the equation from two points

4. C(2, 2) and D(3, 7)

Find the equation from a table of values

5.

x	y
−2	0
0	4
2	8
4	12
6	16

6.

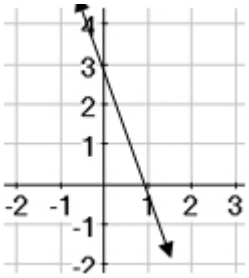
Envelopes Stamped	Remaining Balance ($)
10	40
20	35
30	30
40	25
50	20

a) Record slope as rate of change, with units

b) Find the y-intercept and record the equation of the line with the let statements.

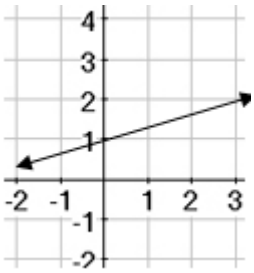
a)Find the equation from a graph

7.



b) For the graph above, find a parallel line equation with a y-intercept of 5,

8.



b) For the graph above, find a perpendicualr line equation with any y-intercept.

Find the equation from a word problem

9.

Matih plans to upgrade his car stereo and needs approximately $400. He currently has $50 in the bank, and plans to save $40 a week.

10.

Grace has a bank account that she rarely uses. On the last day of each month, the bank charges $4.50 as a service charge for managing the account. On January 1, Grace had $67.00 in her account. She made no deposits or withdrawals in this account for 6 months.

Practice TEST #2

1. The y-intercept for $y = 4x - 9$ is _____

2. The slope and the y-intercept for $y = -0.3x + 11$ are:

Slope = _____ y-int = _____

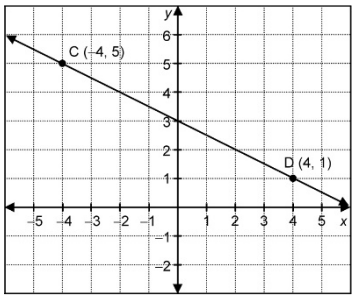
3. The equation for the line with slope –1 and y-intercept 0 is:

y = ____ x + ____

4. The rate of change for $y = 3 - 12x$ is ___

5. The equation of the line through A(5, –2), B(0, –8) is _____

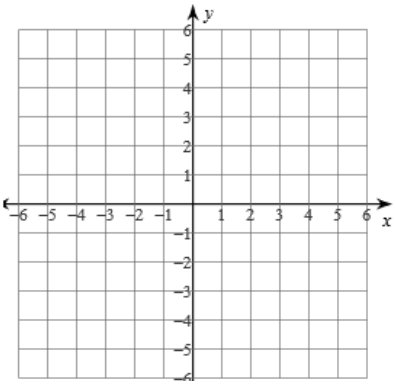
6. Determine the slope of the line segment. Then find the equation of the line



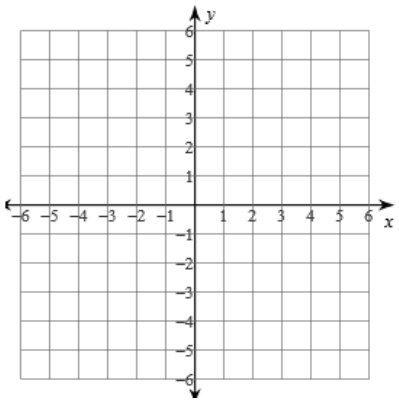
Slope = ____ Equation: _____

7. On grid below, graph each linear relation

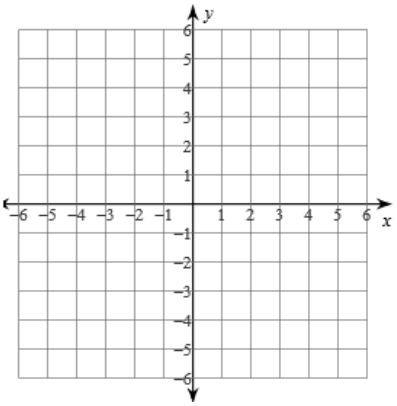
a) $y = -\frac{3}{2}x$



b) $y = \frac{5}{3}x - 6$



c) $y = 4 - x$



8. Refer to your graphs from question 7.

a) Identify the line(s) that have a negative slope

b) Write an equation for a line that is parallel to line a) and has y-int at 9

c) Write an equation for a line that is perpendicular to line b) and has y-int at 3

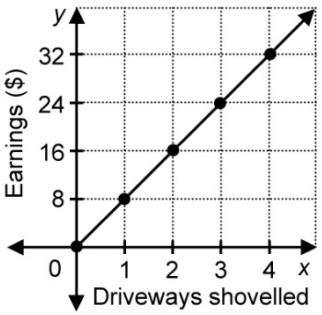
9. Write an equation for each line given

a) $m = -3$, and point N(0, –9)

b) points E(4, –4) and F(6, 12)

10. Jeff shovels the driveways for his neighbours.

His potential earnings are shown in the graph.



a)Determine the slope of the line and record the units.

b) Identify the *y*-intercept.

c) Assign variables and create an equation that represents the earnings versus driveways.

d) What are his earnings after 9 driveways?

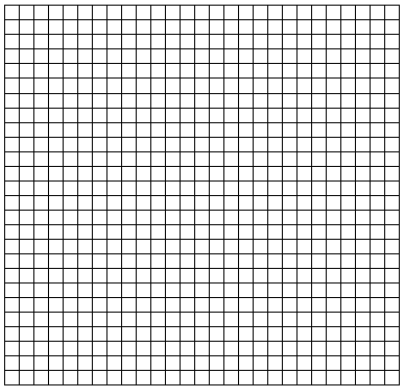
11. Peter is saving money for college. His parents gave him $500, and he plans to save $50 each week.

a) Complete the table.

time (weeks)	Savings ($)
0	500
1	550
2	
3	
4	

c) Use differences to find the rate of change or slope of this relation. Record with units.

c) Graph the data from the table. Label axes and create a title for the graph.



d) Assign variables and write an equation for savings over the weeks.

e) How many weeks would it take Peter to have $8000?