

## Unit 1 Equations of Lines Review

1. On a Cartesian coordinate system, plot and label the following points.

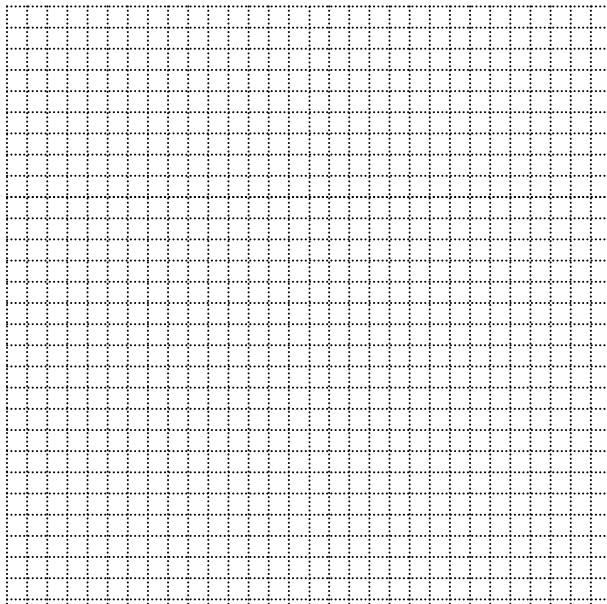
$$A = (2, -1) \quad B = (4, 10) \quad C = (1, 7) \quad D = (2, -3)$$

a) Draw the following lines: AB AC BC CD

b) Calculate the slope for each line using a rate triangle:

Slope (AB) =

Slope (AC) =



c) Calculate the following slopes algebraically. Verify with the graph.

Slope (BC) =

Slope (CD) =

2. Comparison of Slopes

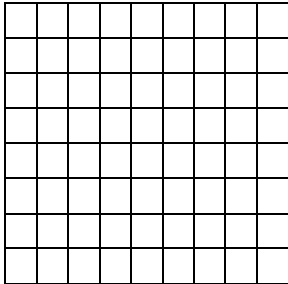
a) If a line slants upward from left to right, it has a \_\_\_\_\_ slope.

b) If a line slants downward from left to right, it has a \_\_\_\_\_ slope.

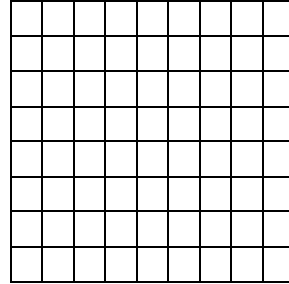
## Unit 1 Equations of Lines Review (continued)

3. Draw two examples of lines with a positive slope and two examples of lines with a negative slope in the corresponding grids below.

### Lines With Positive Slopes



### Lines With Negative Slopes



4. Circle the equations of the lines that are horizontal.  
Underline the equations of lines that are vertical.

a)  $x=7$

b)  $y=3$

c)  $x=-3$

d)  $y=5$

e)  $y=3x+6$

f)  $y=-2$

5. Complete the sentences by filling in the blanks.

#### Horizontal Lines

- a) The equations of all horizontal lines are of the form \_\_\_\_\_.
- b) The slope of a horizontal line is \_\_\_\_\_.
- c) Horizontal lines do not cross the \_\_\_ axis.

#### Vertical Lines

- a) The equations of all vertical lines are of the form \_\_\_\_\_.
- b) The slope of a vertical line is \_\_\_\_\_.
- c) Vertical lines do not cross the \_\_\_ axis

## Unit 1 Equations of Lines Review (continued)

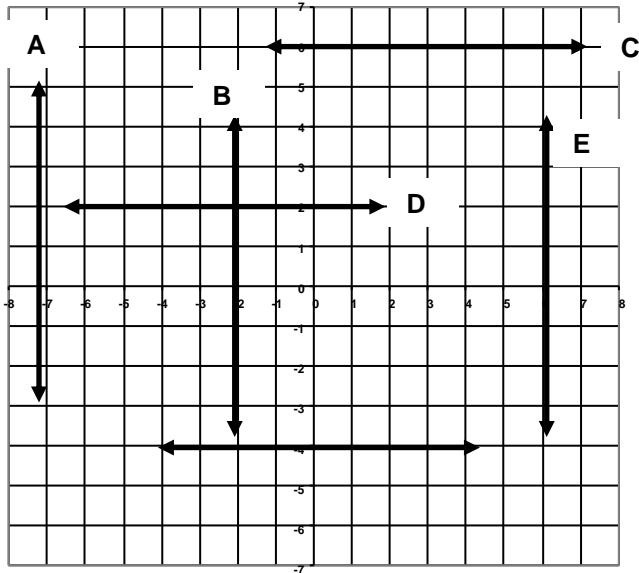
6. Write the equation of each line.

A: \_\_\_\_\_

C: \_\_\_\_\_

E: \_\_\_\_\_

F: \_\_\_\_\_



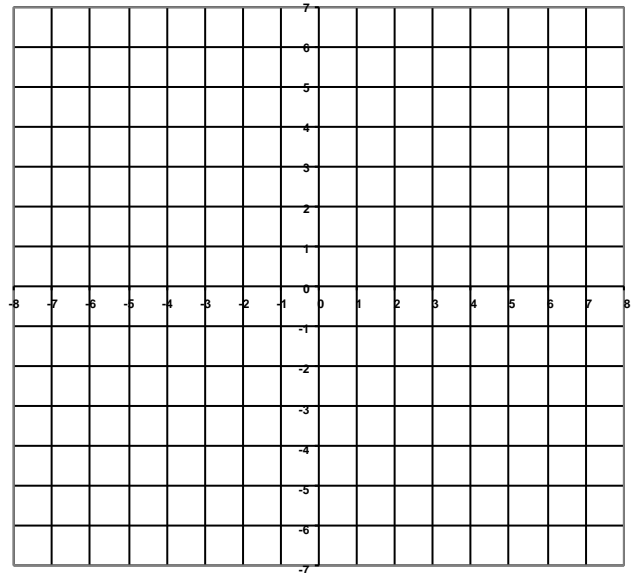
7. Graph and label the lines.

A:  $x = 3$

B:  $y = -6$

C:  $y = 5$

D:  $x = -6$



8. a) When the equation of a line has the form  $y=mx+b$ ,

$m$  is the \_\_\_\_\_ of the line and

$b$  is the \_\_\_\_\_.

b) State the slope and coordinates of the y-intercept for each.

i)  $y = \frac{2}{5}x - 4$

ii)  $y = -3x$

iii)  $y = -2x + 5$

iv)  $y = -3$

9. Write the equation of each line given:

a) slope 5 and y-intercept 3

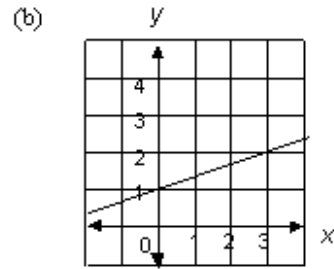
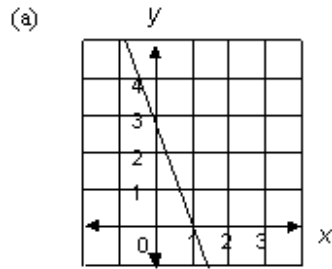
b)  $b = 7$   $m = -\frac{1}{2}$

c) slope of -2 and passing through A(0, 4)

d) slope parallel to  $y = 3x + 7$  with same y-intercept as  $y = 8x - 19$

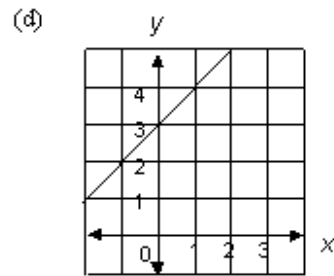
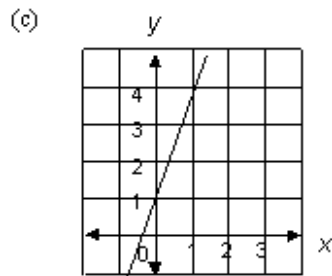
## Unit 1 Equations of Lines Review (continued)

10. Find the equation of each line.



(a) \_\_\_\_\_

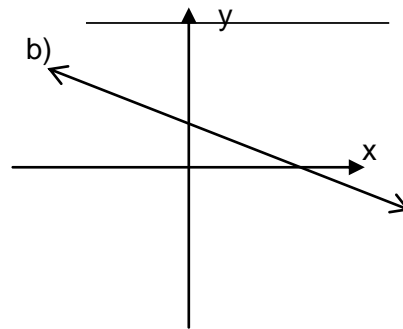
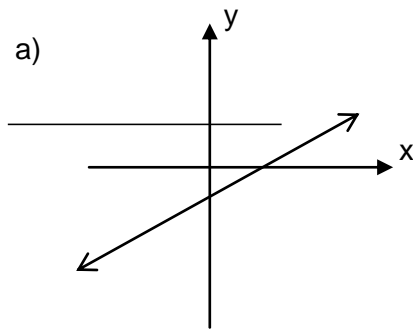
(b) \_\_\_\_\_



(c) \_\_\_\_\_

(d) \_\_\_\_\_

11. State two possible equations for each line.



1) \_\_\_\_\_

2) \_\_\_\_\_

1) \_\_\_\_\_

2) \_\_\_\_\_

c) Justify your choices for  $m$  and  $b$ :

## Unit 1 Equations of Lines Review (continued)

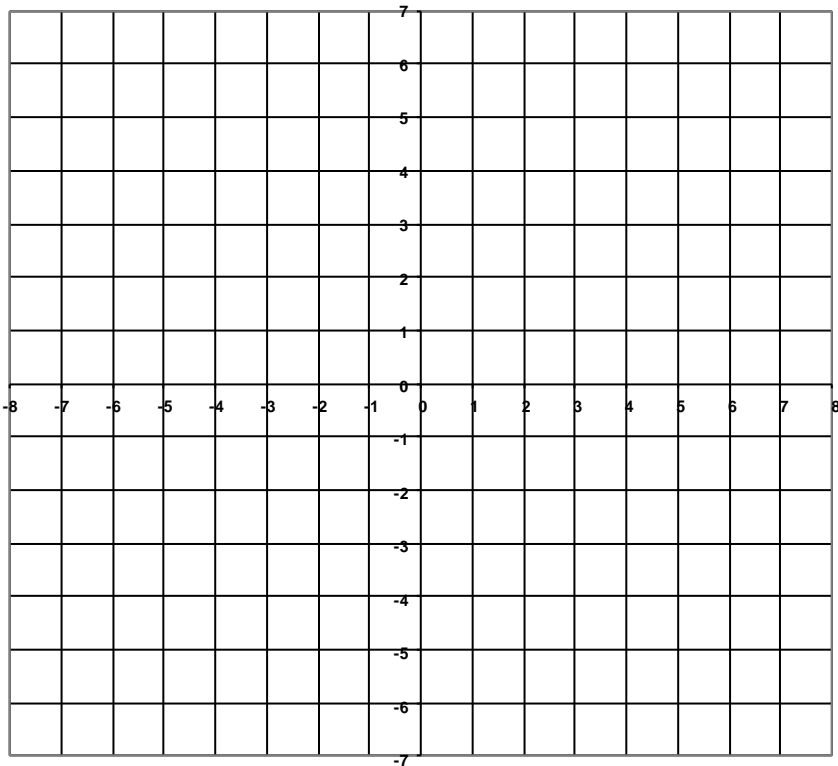
12. Draw rough sketches of the following lines showing the y-intercept and slope triangle for each.

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

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

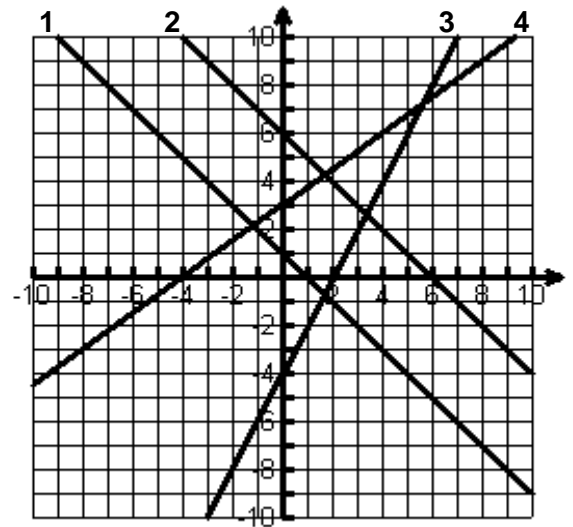
c)  $y = -3x + 2$

d)  $y = -\frac{7}{5}x - 3$



Answer the following questions based on the lines graphed below.

13. Which lines will have positive slopes?
14. Which lines will have negative slopes?
15. Fill in the table by listing the coordinates for the x-intercepts and y-intercepts.



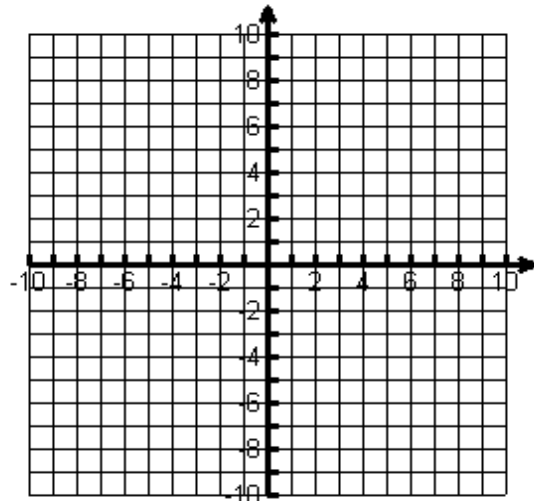
Line	x-intercepts	y-intercepts
1		
2		(0, 6)
3		
4	(-4, 0)	

## Unit 1 Equations of Lines Review (continued)

16. How does knowing the x-intercept and y-intercept help you to graph a line?

17. Graph the following lines by finding the x and y-intercepts.

a)  $3x - 2y - 6 = 0$       b)  $2x - 5y - 14 = 0$



18. Find the equation of the line given the point and slope.

a)  $(2, 1)$ ;  $m = 3$

b)  $(-3, 4)$ ;  $m = \frac{3}{4}$

c)  $(4, -5)$ ;  $m = -1$

d)  $(5, 0)$ ;  $m = -6$

19. Find the equation of the line joining the two given points.

a)  $(2, 1)$ ;  $(-3, 4)$ ;

c)  $(4, -5)$ ;  $(5, 0)$ ;

## Unit 1 Equations of Lines Review (continued)

Scenario	<b>1. Babysitting Earnings</b> A family pays the babysitter \$4.00/hr, plus a tip of \$5.00.	<b>2. Bank Account Balance</b> A bank account is opened with a balance of \$900. Each week \$150 is withdrawn from the account.	<b>3. Car Rental Costs</b> Rent-A-Ride charges a flat fee of \$55 plus \$0.25/km to rent a car.
Introduce Variables	Let x =  Let y =	Let x =  Let y =	Let x =  Let y =
Equation in the form of $y=mx+b$			
In real-life terms, what is the y-intercept?			
What would be the real-life implication of a greater y-intercept?			
What would be the real-life implication of a smaller y-intercept?			
In real-life terms, what is the rate of change (m)?			
What would be the real-life implication of a greater (steeper) rate of change?			
What would be the real-life implication of a smaller (flatter) rate of change?			