

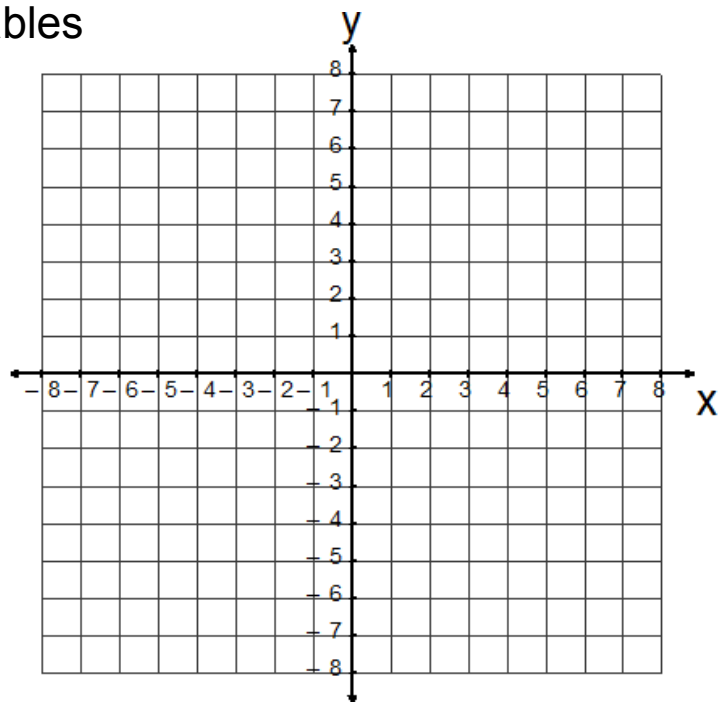
## Sect. 4.3 Another Form of the Equation for a Linear Relation

### Example 1:

- (i) Complete each table of values.
- (ii) Graph each line on the coordinate grid provided.
- (iii) Describe each relation.
- (iv) Identify the slope.

a)  $y = 3x - 1$       ↙ two variables

x	y
-2	
-1	
0	
1	
2	



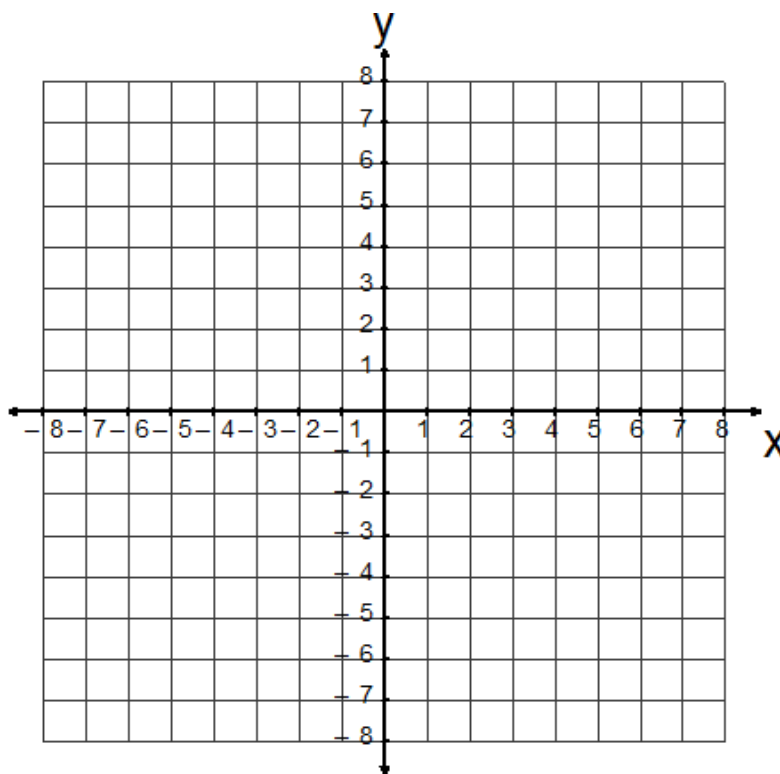
slope =  $\frac{\text{rise}}{\text{run}}$

Which direction is the line slanting?

Sec 4.3 Slope

b)  $y = -x + 2$

x	y
-2	
-1	
0	
1	
2	



slope =

Which direction is the line slanting?

## Oblique Lines

- Slope:
- The numerator represents:
- The denominator represents:
- Positive slope:
- Negative slope:



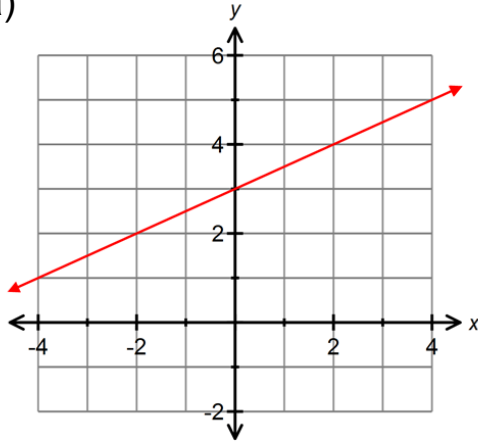
## Sec 4.3 Slope

### Slope

#### Example 2:

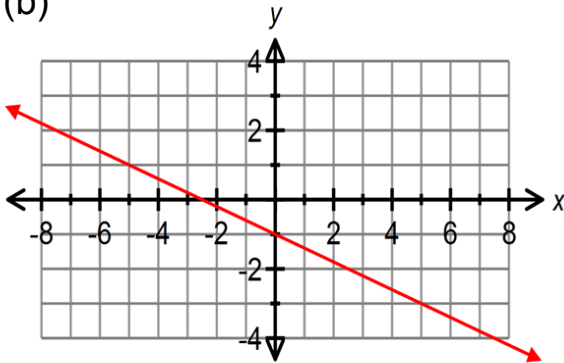
Calculate the slope of each line.

(a)

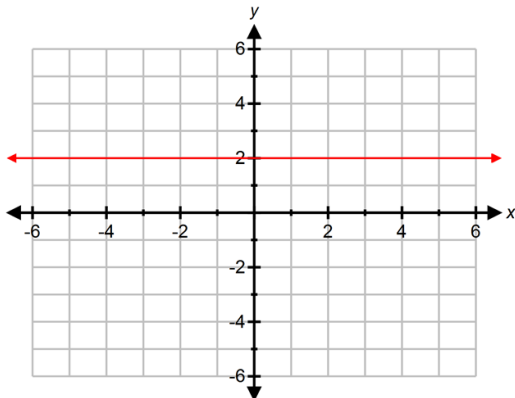


$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

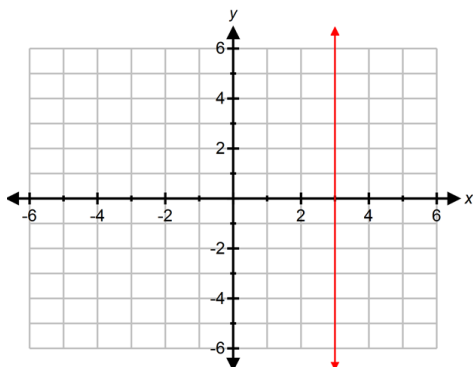
(b)



(c)



(d)



## Equation of a Line

Lines can be written in the form:  $y = mx + b$

This is called **Slope-Intercept Form** for the equation of a line.

$$y = \underbrace{mx}_{\text{Slope}} + \underbrace{b}_{\text{y-intercept}}$$

↓  
the point where the line crosses the y-axis.

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### Example 3:

What is the slope and y-intercept of each line?

a)  $y = 2x + 5$

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

c)  $y = \frac{2}{3}x + 11$

d)  $y = 4x - 3$

e)  $y = 3x - \frac{1}{4}$

We can find slope:

1. From a graph choose any two points and calculate  $\frac{\textit{rise}}{\textit{run}}$
2. From a table of values. If the independent variable increases by 1 each time, slope is the constant amount the dependent variable increases or decreases.
3. From an equation, it is the number multiplied by  $x$

## Sec 4.3 Slope

### Example 4:

What is the equation of each line, when given slope and y-intercept?

a) slope =  $\frac{2}{3}$  ,      y – intercept = 7

b) slope =  $-4$  ,      y-intercept =  $-2$

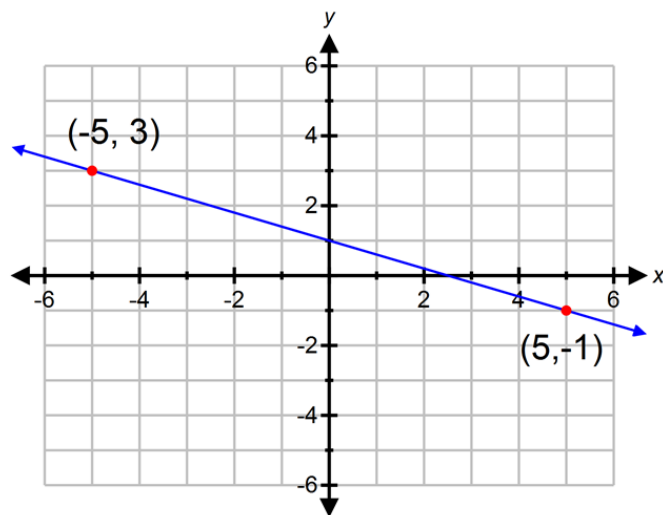
c) slope =  $0$  ,      y-intercept = 3

d) slope =  $-\frac{1}{2}$  ,      y-intercept = 0

### Example 5:

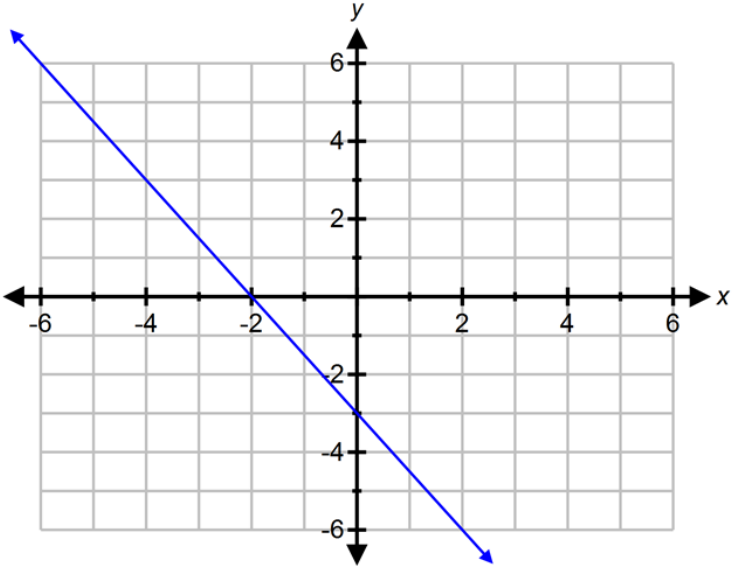
What is the slope, y-intercept and equation of each line graphed below?

a)

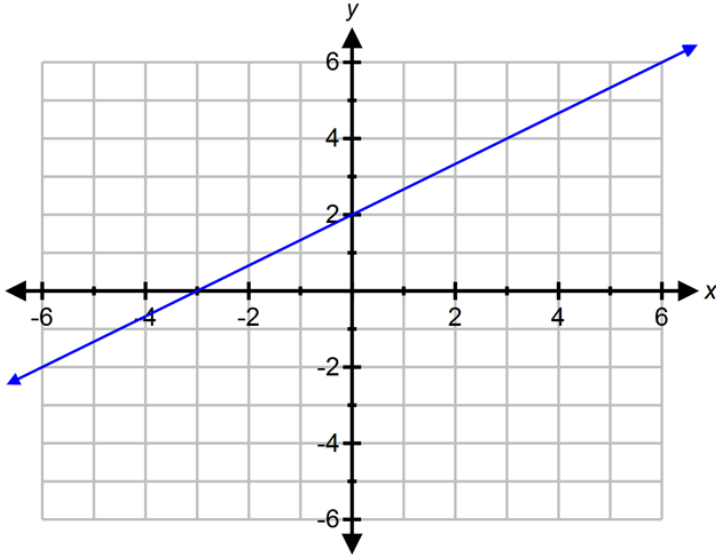


Sec 4.3 Slope

b)



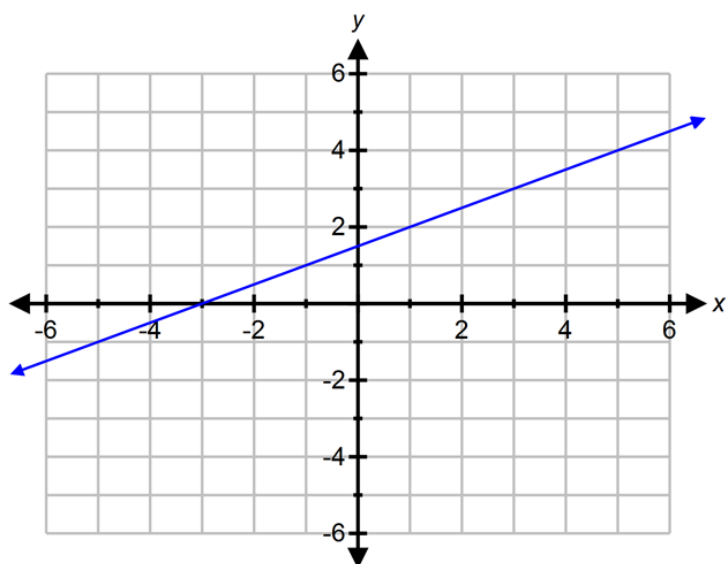
c)



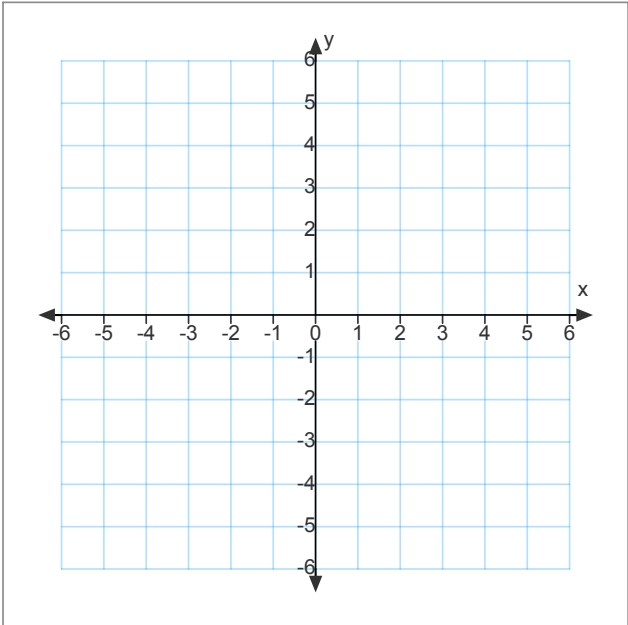
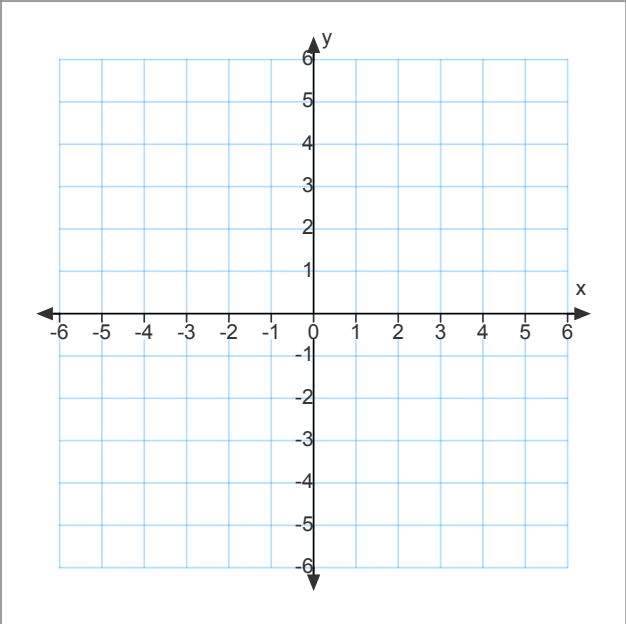
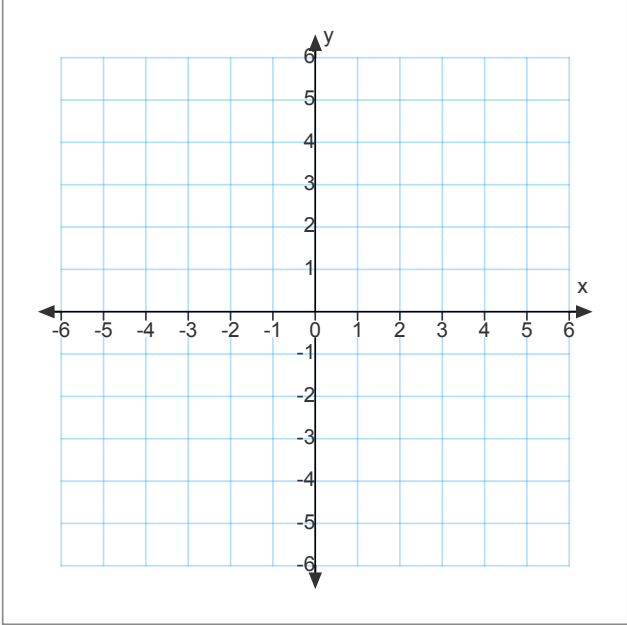
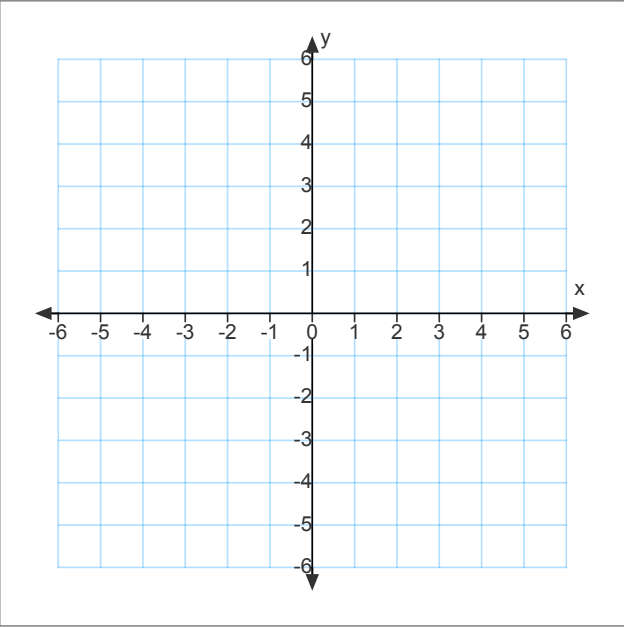


## Sec 4.3 Slope

d)



Sec 4.3 Slope



## Equation of a Line

The equation of a line is not always written in slope-intercept form. We can also represent lines in other forms.

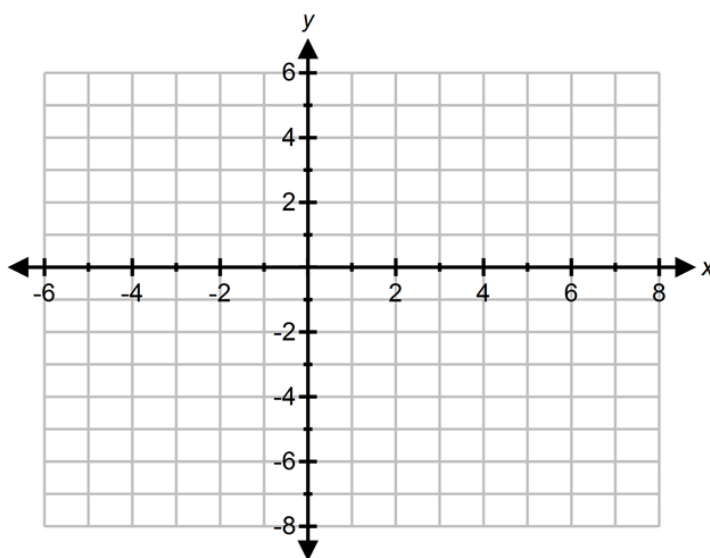
### Example 6:

- (i) Complete each table of values.
- (ii) Describe each relation.
- (iii) Which way will the graph slant?
- (iv) Graph the relation.

a)

$$x + y = 5$$

x	y
-2	7
-1	6
0	5
1	4
2	3



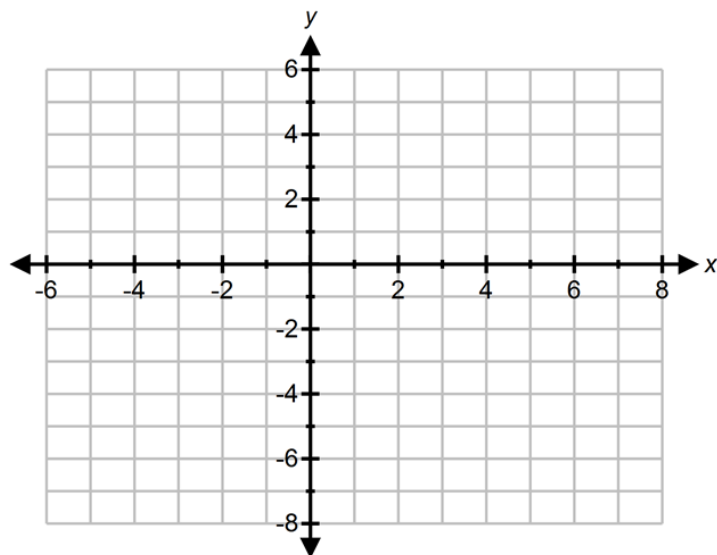
## Sec 4.3 Slope

b)  $3x - 2y = 6$

$x$

$y$

$x$	$y$
-2	-6
0	-3
2	0



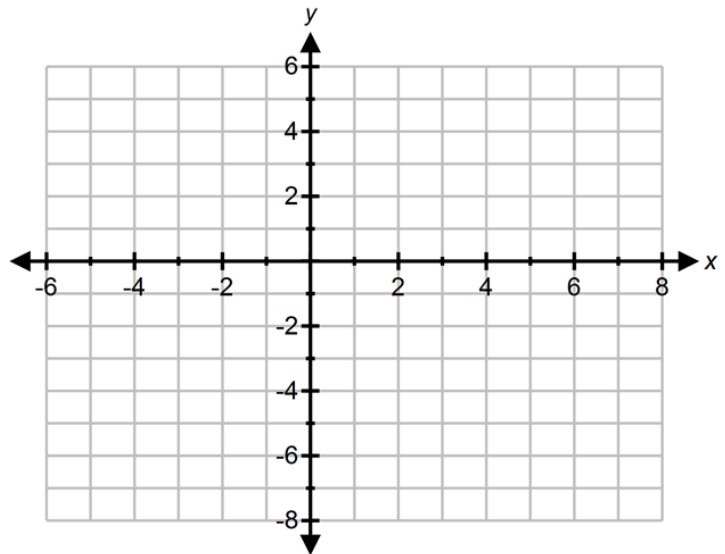
## Special Cases for an Equation of a Line

### Example 7:

Graph each line and describe the line.

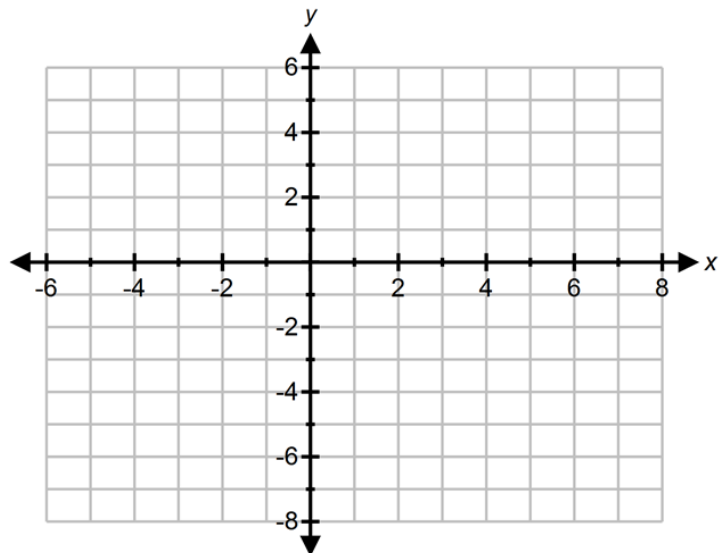
a)

x	y
-2	3
-1	3
0	3
1	3
2	3





b)

x	y
4	-2
4	-1
4	0
4	1
4	2



**NOTE:**

<p>Horizontal Lines</p> <p style="padding-left: 40px;">Perpendicular to y-axis</p> <p style="padding-left: 40px;">Equation: <math>y = \#</math></p>	
<p>Vertical Lines</p> <p style="padding-left: 40px;">Perpendicular to x-axis</p> <p style="padding-left: 40px;">Equation: <math>x = \#</math></p>	

Pages	Questions	Extra Practice
Section 4.3 Pg 178	#4ab, 5abc, 6bd, 7abc, 8ac, 10a i iv, 11bd, 15d	5def, 6ab, 8bd, 9, 10a ii iii, 11ac, 15abc