Math 101, Ch. 3 Practice Test

1. In which quadrant or axis does each of the following lie?

(a) (10, 5)

(b) (1, 0)

(c) (5, –1)

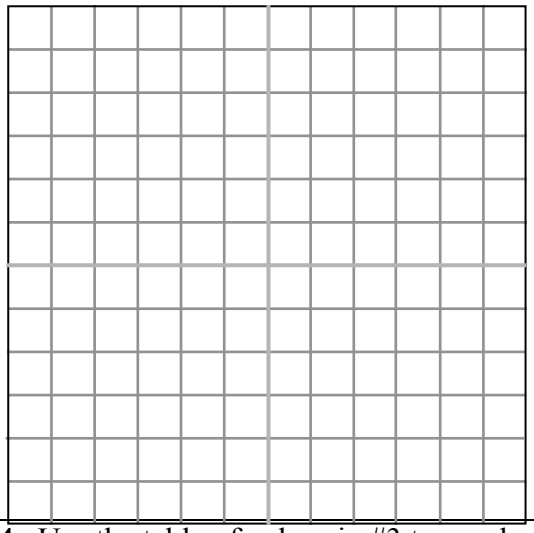
(d) (–2, –4)

2. State the x-intercept and y-intercept and use them to graph the equation

$$5x - 2y = 10$$

x-intercept: (,)

y-intercept: (,)

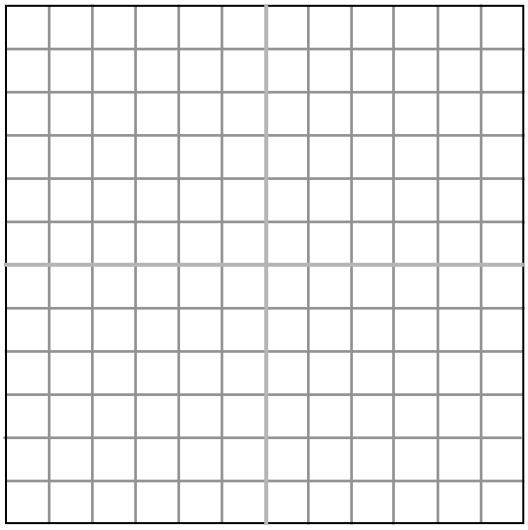


3. Solve for y, then complete the table of values for

$$-6x + 3y = -3$$

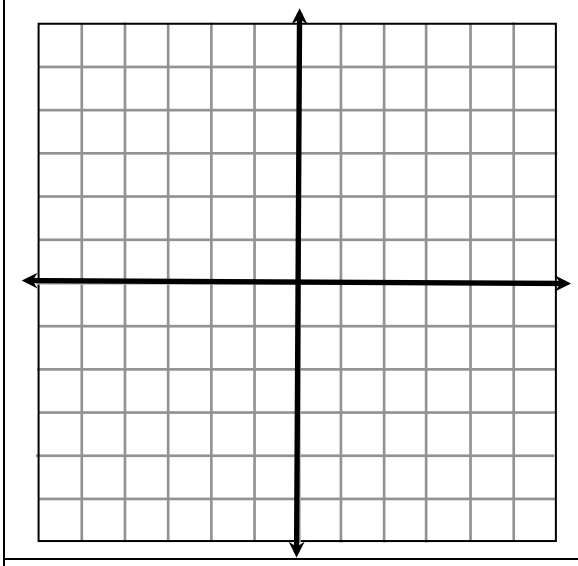
x	y
–2	
–1	
0	
1	
2	

4. Use the table of values in #3 to graph the equation $-6x + 3y = -3$.



5. Graph

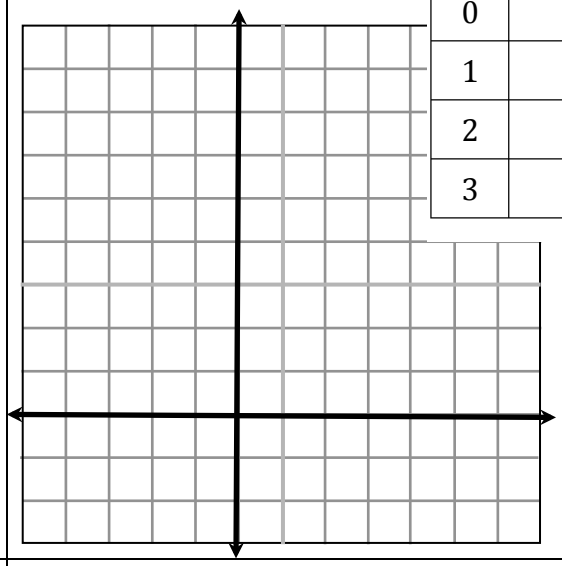
$x = 3$



6. Graph

$y = x^2 - 2$

x	y
−3	
−2	
−1	
0	
1	
2	
3	



7. Determine the slope and y-intercept of each equation

(a) $y = \frac{1}{3}x - 10$

(b) $y = -x + 2$

8. Determine the slope and y-intercept of each equation

(a) $y = -\frac{3}{4}x$

(b) $y = 5$

9. (a) Determine the slope of the line that passes through the points

(a) (5, 4) and (4, 1)

(b) (–3, –3) and (–2, –4)

10. Are the following lines parallel, perpendicular or neither?

(a) $y = -3x + 4$
$y = 3x + 5$

(b) $y = \frac{3}{7}x + 4$
$y = -\frac{7}{3}x + 5$

11. Are the following lines parallel, perpendicular or neither?

(a) $y = 4x + 4$
$y = 4x + 5$

(b) $y = \frac{4}{5}x + 4$
$y = \frac{5}{4}x + 5$

12. (a) Determine the slope of the line with the following equation:

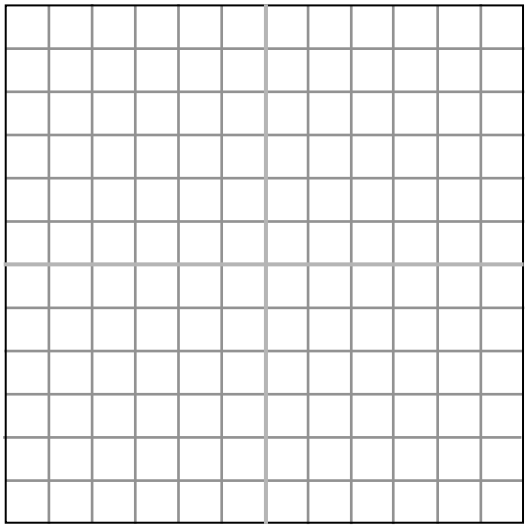
$$x - 2y = 12$$

(b) What is the slope of a line perpendicular to the one above?

$m_{\perp} =$

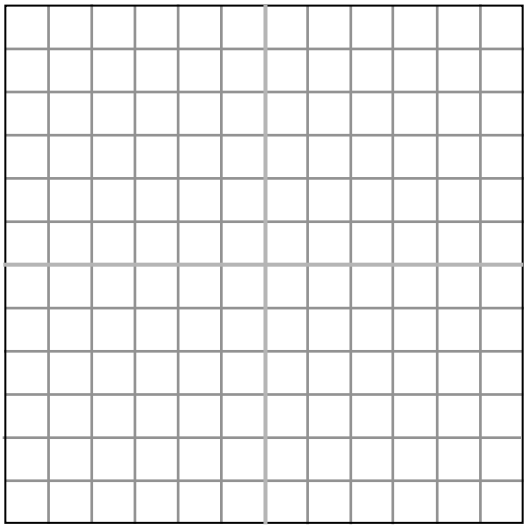
13. Use the slope and y-intercept to graph

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

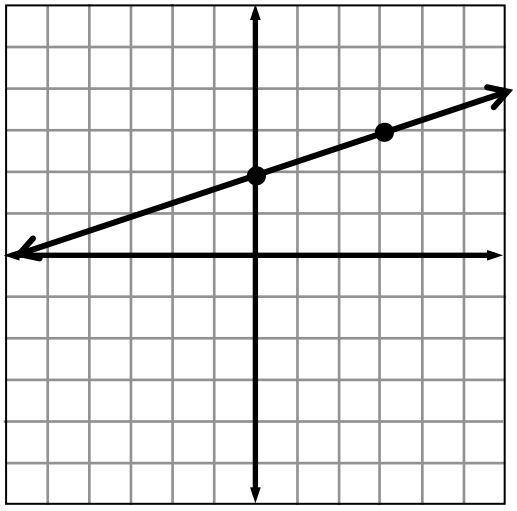


14. Use the slope and y-intercept to graph

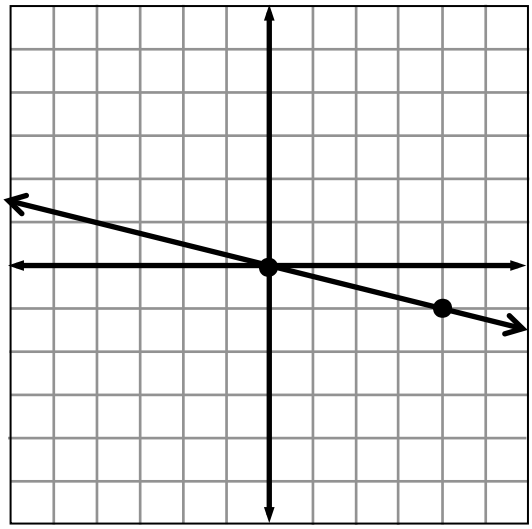
$$y = 2x - 4$$



15. Write the equation in slope-intercept form ($y = mx + b$) of the line shown.



16. Write the equation in slope-intercept form ($y = mx + b$) of the line shown.



17. Write the equation in slope-intercept form ($y = mx + b$) of a line that has slope -5 and passes through $(0, 1)$.	**18.** Write the equation in slope-intercept form ($y = mx + b$) of a line that has slope $\frac{1}{4}$ and passes through $(4, 5)$.
19. Write the equation in slope-intercept form ($y = mx + b$) of the line that passes through $(-3, -5)$ and $(0, 1)$	**20.** Write the equation in slope-intercept form ($y = mx + b$) of the line that passes through $(4, -2)$ and $(0, -2)$

21. Write the equation in slope-intercept form ($y = mx + b$) of the line that passes through (6, 1) and is parallel to

$$-6x + 3y = 12$$

22. Write the equation in slope-intercept form ($y = mx + b$) of the line that passes through (6, 1) and is perpendicular to

$$-6x + 3y = 12$$

23. Determine if the following mappings are functions or not.

(a) $x \longrightarrow y$

$0 \longrightarrow -4$

$3 \searrow$

$\quad -2$

$5 \nearrow$

(b) $x \longrightarrow y$

$1 \nearrow 1$

$1 \searrow 3$

$2 \longrightarrow 5$

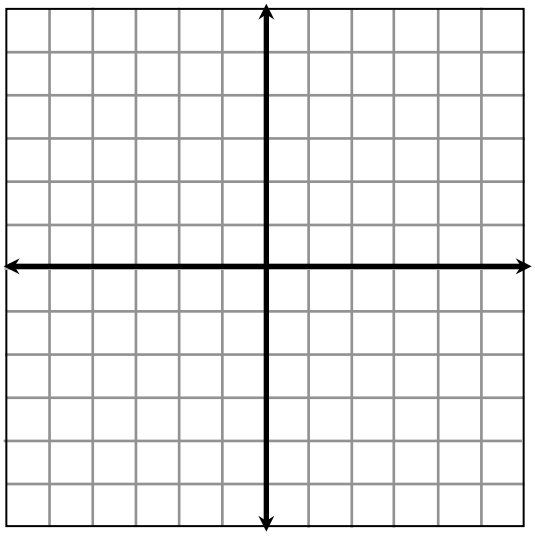
24.

(a) For $f(x) = 2x + 3$, find $f(4)$.

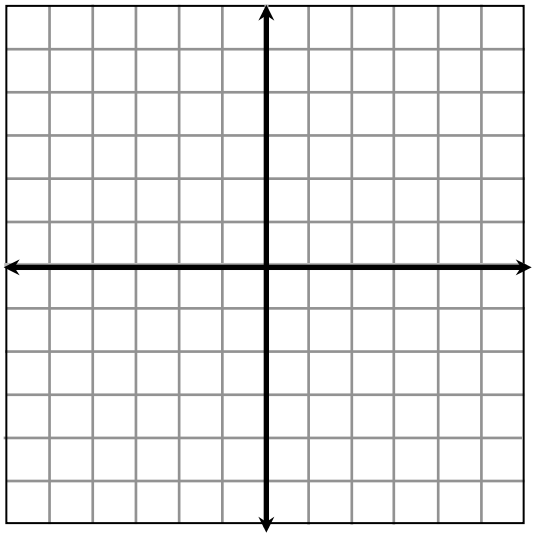
(b) For $f(x) = (x - 1)^2$, find $f(-5)$.

25.

(a) Graph $y < -3x + 1$



(b) Graph $y \geq 1$



Addition Table

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

Multiplication Table

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Rules for Signed Numbers

Addition	*Subtraction*
Positive + Positive = Positive **POSITIVE** + Negative = Positive Positive + **NEGATIVE** = Negative Negative + Negative = Negative Numbers in bold, capital letters have a greater magnitude than nonbold, lower case partner number.	$A - B = A + (-B)$
Multiplication	*Division*
Positive × Positive = Positive Positive × Negative = Negative Negative × Positive = Negative Negative × Negative = Positive	Positive ÷ Positive = Positive Positive ÷ Negative = Negative Negative ÷ Positive = Negative Negative ÷ Negative = Positive

Rules for Fractions For any real numbers, a, b, c, and d, $b \neq 0$, $c \neq 0$, and $d \neq 0$

$$\frac{a}{c}+\frac{b}{c}=\frac{a+b}{c} \qquad \frac{a}{c}-\frac{b}{c}=\frac{a-b}{c} \qquad \frac{a}{b}\bullet\frac{c}{d}=\frac{ac}{bd} \qquad \frac{a}{b}\div\frac{c}{d}=\frac{a}{b}\bullet\frac{d}{c}=\frac{ad}{bc}$$

Distributive Property

For any real numbers, a, b, c, and d

$$a(b + c) = ab + ac$$