

# Key

## Review for Test 13 (Up to 46)

1. What are the next four terms of the following sequence?

8, 5, 2, -1, ...

Common Difference  $d = -3$

$$-1 - 3 = -4$$

$$-4 - 3 = -7$$

$$-7 - 3 = -10$$

$$-10 - 3 = -13$$

$-4, -7, -10, -13$

2. Write an equation to represent a horizontal line that passes through the point (24, 3).  
Write an equation to represent a vertical line that passes through the point (24, 3).

Horizontal  $\longleftrightarrow$   $y = \#$

Vertical  $\updownarrow$   $x = \#$

$y = 3$   
 $x = 24$

3. Consider the system of equations shown below:

$$x + y = -2$$

$$y = 4x + 3$$

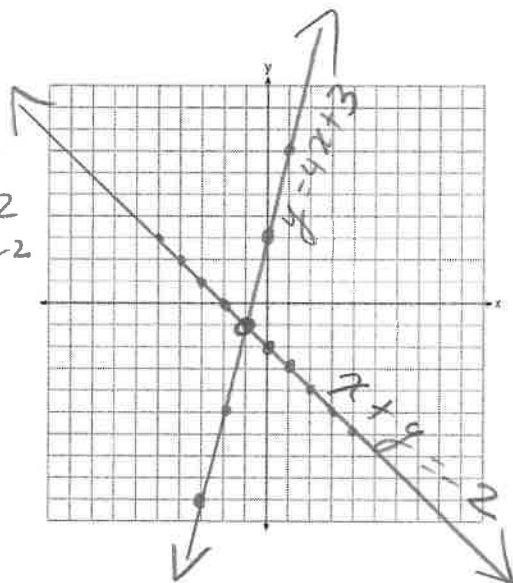
$$m = 4 \quad b = 3$$

$$\begin{array}{r} x + y = -2 \\ -x \quad -y \\ \hline y = -x - 2 \end{array}$$

$$m = -1 \quad b = -2$$

- (a) Graph both equations on the grid shown.  
Label each line with its equation.

- (b) At what point do the two lines intersect?



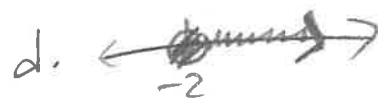
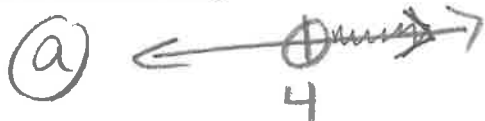
$(-1, -1)$

4. Eliza was buying bananas. The function  $C(w)$  represents the cost, in dollars, of a bunch of bananas weighing  $w$  pounds. Describe the domain for the function.

Domain is input. Input is  $w$ .  $w$  represents number of pounds. Pounds of bananas will always be positive. Pounds can be whole numbers, fractions, decimals. Those are all rational. Domain can be positive rational numbers.

5. Graph each inequality on a number line.

- a.  $x > 4$
- b.  $x < \frac{1}{2}$
- c.  $x \leq -3$
- d.  $x \geq 2$



6. What is the value of the x-intercept for the graph of  $-2x - 14y = -12$

x-intercept means  $y = 0$

$$-2x - 14(0) = -12$$

$$\frac{-2x}{-2} = \frac{-12}{-2}$$

$$\boxed{x = 6}$$

7. The following equation is given to represent the perimeter of a rectangle:  $P = 2(L + W)$ .

(a) Solve for L in terms of P and W.

(b) If the perimeter of a rectangle is 42 and the ~~length~~<sup>width</sup> is 8, find the ~~width~~<sup>Length</sup>.

(c) Using the given length above and the width that you found in part B, find the area of the rectangle.

(a) 
$$\frac{P}{2} = \frac{2(L+W)}{2}$$

$$\frac{P}{2} = L + W$$

$$\frac{P}{2} - W = L + W - W$$

$$\boxed{\frac{P}{2} - W = L}$$

(b) 
$$\frac{P}{2} - W = L$$

$$\frac{42}{2} - 8 = L$$

$$21 - 8 = L$$

$$\boxed{13 = L}$$

(c) 
$$A = LW$$

$$A = 8 \cdot 13$$

$$A = 104$$

8. Solve the system algebraically using substitution.

$$y = 4x - 3$$

$$y = 3x - 7$$

$$4x - 3 = 3x - 7$$

$$-3x \quad -3x$$

$$x - 3 = -7$$

$$+3 \quad +3$$

$$x = -4$$

9. The owner of a business has one employee, who is paid an hourly rate of \$15. The owner estimates his weekly profit using the function  $P(x) = 6400 - 15x$ . In this function, what does the  $P(x)$  represent? What does the  $x$  represent?

$P(x)$  represents his weekly profit

$x$  represents the number of hours worked by his employee

10. Write the first 4 terms of an arithmetic sequence whose first term is  $m$  and has a common difference of 3.

$m, m+3, m+6, m+9$

11. Consider the piecewise linear function given the equation.

$$f(x) = \begin{cases} -2x - 1 & x \leq 2 \\ -x + 4 & x > 2 \end{cases}$$

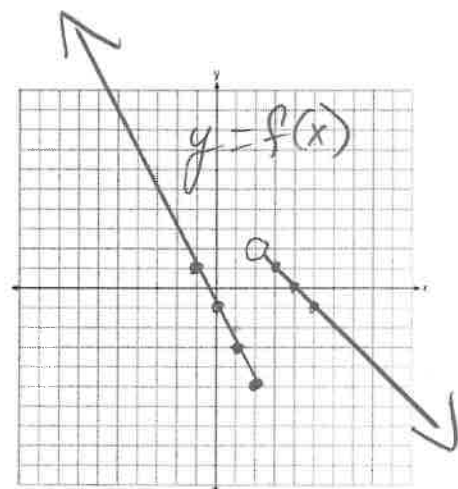
Graph the piecewise linear function on the axes provided.

$f(x) = -2x - 1$

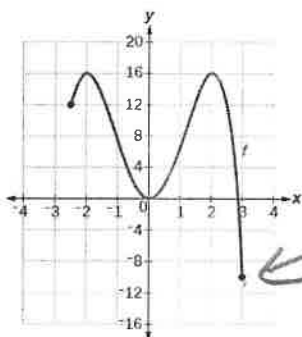
x	y
2	-5
1	-3
0	-1
-1	1

$f(x) = -x + 4$

x	y
2	2
3	1
4	0
5	-1



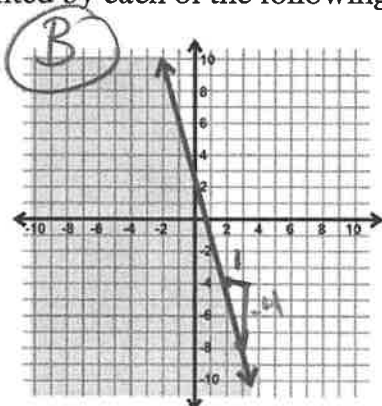
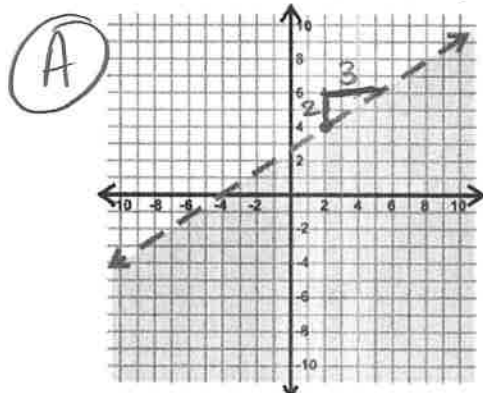
12. What are the coordinates for the absolute minimum in the graph provided?



↓  
Lowest Point on graph

$(3, -10)$

13. Write the inequality represented by each of the following graphs.



(A)  $b = 3$   
 $m = \frac{1}{3}$   
 Dashed Line (No Equal)  
 Shaded Down  $<$   
 $y < \frac{1}{3}x + 3$

(B)  $b = 2$   
 $m = -\frac{1}{4}$   
 Solid Line (Equal)  
 Shaded Down  $<$   
 $y \leq -\frac{1}{4}x + 2$

14. Simplify:  $(-3x^4)^5$

$$(-3)^5 (x^4)^5$$

$$-243 x^{4+5}$$

$$\boxed{-243 x^9}$$

15. Write a number sentence that illustrates the distributive property.

$$3(1+2) = 3 + 6$$

16. Find the first four terms of the sequence using the recursive formula:

$$b_1 = -5$$

$$b_{n+1} = b_n + 3$$

$$1 \quad -5$$

$$2 \quad -5 + 3 = -2$$

$$3 \quad -2 + 3 = 1$$

$$4 \quad 1 + 3 = 4$$

$$\boxed{-5, -2, 1, 4}$$