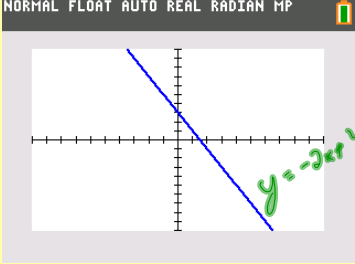


Graphing and Evaluating Functions

Graph the function $y = -2x + 3$
 $f(x) = -2x + 3$



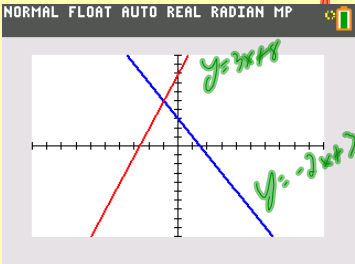
To Graph Lines (functions):

1. Enter equation in Y=.
2. Use ZOOM #6 (will give standard 10 X 10 window).
3. Use GRAPH to display graph.
4. Use WINDOW (to create your own screen settings).
5. Use TRACE to move spider on graph – arrow up/down between graphs

X	Y1			
-5	13			
-4	11			
-3	9			
-2	7			
-1	5			
0	3			
1	1			
2	-1			
3	-3			
4	-5			
5	-7			

X = -5


Graph the function $-3x + y = 8$
 $y = 3x + 8$



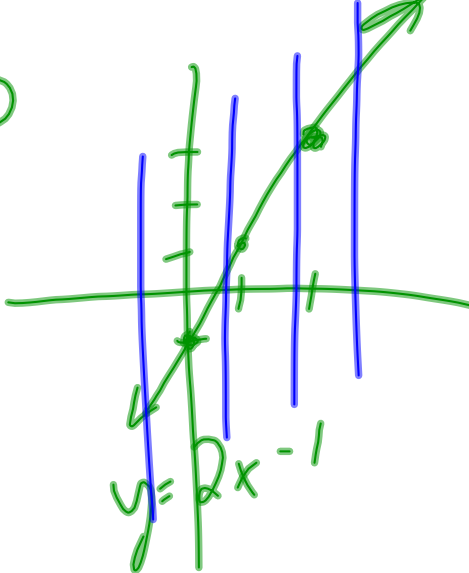
X	Y1	Y2		
-5	13	-7		
-4	11	-4		
-3	9	-1		
-2	7	2		
-1	5	5		
0	3	8		
1	1	11		
2	-1	14		
3	-3	17		
4	-5	20		
5	-7	23		

X = -5

⑤



⑥



$$f(x) = -5x + 2$$

$$f(3) = -5(3) + 2 = -13$$

$$f(-4) = -5(-4) + 2 = 22$$

$$g(-12) = -2(-12) + 3 = 27$$

$$f(-2) = -5(-2) + 2 = 12$$

$$g(-6) = -2(-6) + 3 = 15$$

(12) $f(m-2)$
 $-5(m-2) + 2$
 $-5m + 10 + 2$
 $-5m + 12$

Homework
 State the domain and range of each relation. Then determine whether each relation is a function.

1. Domain: {2, 3}, Range: {21, 25, 30}. Not a Function.

2. Domain: {5, 10, 15}, Range: {105, 110}. Function.

3. Domain: {-3, -1, 0, 2, 3}, Range: {0, -1, 0, -2, 4}. Function.

4. Domain: {-2, -2, -1, 1, 2}, Range: {-1, 1, 0, 0, 1}. Not a Function.

5. $x = -1$. Domain: $x = -1$, Range: $\{y \mid -\infty < y < \infty\}$.

6. $y = 2x - 1$. Domain: all \mathbb{R} , Range: $\{y \mid y \in \mathbb{R}\}$.

Find each value if $f(x) = -5x + 2$ and $g(x) = -2x + 3$.

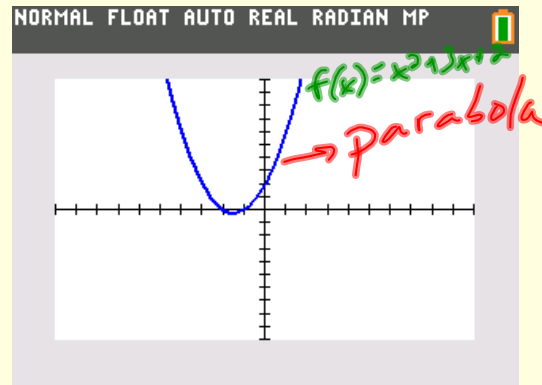
7. $f(3) = -13$
 8. $f(-4) = 22$
 9. $g(-12) = 27$
 10. $f(-2) = 12$
 11. $g(-6) = 15$
 12. $f(m-2) = -5(m-2) + 2 = -5m + 10 + 2 = -5m + 12$

13. Use the functions below to perform the following operations:
 $f(x) = 2x$, $g(x) = x - 2$, $h(x) = x^2$, $k(x) = x/2$
 $k(x) \cdot f(x) = 2x \cdot (x/2) = x^2$

Graph the function $f(x) = x^2 + 3x + 2$ *quadratic*

X	Y ₁				
-7	30				
-6	20				
-5	12				
-4	6				
-3	2				
-2	0				
-1	0				
0	2				
1	6				
2	12				
3	20				

X = -7



What do you notice about the difference in three functions?

Functions can either be **linear** (make a straight line) or **nonlinear** (not a straight line).

For $f(x) = -4x + 7$, find each value:

$$\begin{aligned} \text{a. } f(2) &= -4(2) + 7 \\ &= -8 + 7 \\ &= -1 \end{aligned}$$

$$\begin{aligned} \text{b. } f(-3) &= -4(-3) + 7 \\ &= 19 \end{aligned}$$

$$\text{c. } f(-3) + 1$$

$$\begin{aligned} &= -4(-3) + 7 + 1 \\ &= 20 \end{aligned}$$

If $f(t) = 2t^3$, find each value.

a. $f(4) = 2(4)^3 = 128$

b. $f(-5) = 2(-5)^3 = -250$

c. $f(-3) - f(1) = -54 - 2 = -56$ $2(-3)^3$ $2(1)^3$

d. $3[f(t)] + 2 = 3(2t^3) + 2 = 6t^3 + 2$

HW: Glencoe p. 52 (PDF p. 123) #s 28 - 40 evens

Determine whether each relation is a function.

27. $\{(5, -7), (6, -7), (-8, -1), (0, -1)\}$ 28. $\{(4, 5), (3, -2), (-2, 5), (4, 7)\}$

29. $y = -8$

30. $x = 15$

31. $y = 3x - 2$

32. $y = 3x + 2y$

5 If $f(x) = -2x - 3$ and $g(x) = x^2 + 5x$, find each value.

33. $f(-1)$

34. $f(6)$

35. $g(2)$

36. $g(-3)$

37. $g(-2) + 2$

38. $f(0) - 7$

39. $f(4y)$

40. $g(-6m)$

41. $f(c - 5)$