

Let's Test Our Graphing Skills!

Part I:

For each of the following functions...

- find the missing values of y
- plot each of the nine points (at least the ones that will fit on your graph)
- draw a continuous function through your points

$$y = |x|$$

x	y
-8	8
-6	6
-4	4
-2	2
0	0
2	2
4	4
6	6
8	8

$$y = |x| + 5$$

x	y
-6	
-5	
-4	
-2	
0	
2	
4	
5	
6	

$$y = |x| - 4$$

x	y
-8	
-6	
-4	
-2	
0	
2	
4	
6	
8	

$$y = |x| + 2$$

x	y
-8	
-6	
-4	
-2	
0	
2	
4	
6	
8	

$$y = |x| - 7$$

x	y
-8	
-6	
-4	
-2	
0	-1
2	0
4	1
6	2
8	3

Part II:

For each of the following functions...

- find the missing values of y
- plot each of the nine points
- draw a continuous function through your points

$$y = |x|$$

x	y
-8	8
-6	6
-4	4
-2	2
0	0
2	2
4	4
6	6
8	8

$$y = |x + 5|$$

x	y
-8	
-6	
-4	
-2	
0	
2	
3	
4	
5	

$$y = |x - 4|$$

x	y
-6	
-4	
-2	
0	
1	
2	
4	
6	
8	

$$y = |x + 2| - 4$$

x	y
-8	
-6	
-4	
-2	
0	
2	
4	
6	
8	

$$y = |x - 7| + 3$$

x	y
0	
1	
2	
4	
6	
8	
10	
12	
14	

Part III:

For each of the following functions...

- find the missing values of y
- plot each of the nine points
- draw a continuous function through your points

$$y = x^2$$

x	y
-4	16
-3	9
-2	4
-1	1
0	0
1	1
2	4
3	9
4	16

$$y = x^2 + 5$$

x	y
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	

$$y = x^2 - 4$$

x	y
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	

$$y = (x + 2)^2$$

x	y
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	

$$y = (x - 1)^2 + 7$$

x	y
-4	
-3	
-2	
-1	
0	
1	
2	
3	
4	

The “family” of absolute value functions has a “parent” $y = |x|$. We’ve translated the parent function with each of the other functions. Describe how each of these functions is different than $y = |x|$.

1. $y = |x + 5|$
2. $y = |x - 4|$
3. $y = |x| + 2$
4. $y = |x| - 7$
5. $y = |x + 5|$
6. $y = |x - 4|$
7. $y = |x + 2| - 4$
8. $y = |x - 7| + 3$

We’ve not graphed the following, but write how the graph of $y = |x|$ will be translated by looking at the equation

9. $y = |x + 3| - 9$
10. $y = |x - 1| + 9$
11. $y = (x - 2)^2 - 1$
12. $y = (x + 12)^2 - 4$