Ready, Set, Go!

Ready

Topic: Solving absolute value equations.

Solve for x. (You will have two answers.)

1. $|x| = 7$ 2. $|x - 6| = 3$ 3. $|w + 4| = 11$

4. $-9|m| = -63$ 5. $|3d| = 15$ 6. $|3x - 5| = 11$

7. $-|m + 3| = -13$ 8. $|-4m| = 64$ 9. $2|x + 1| - 7 = -3$

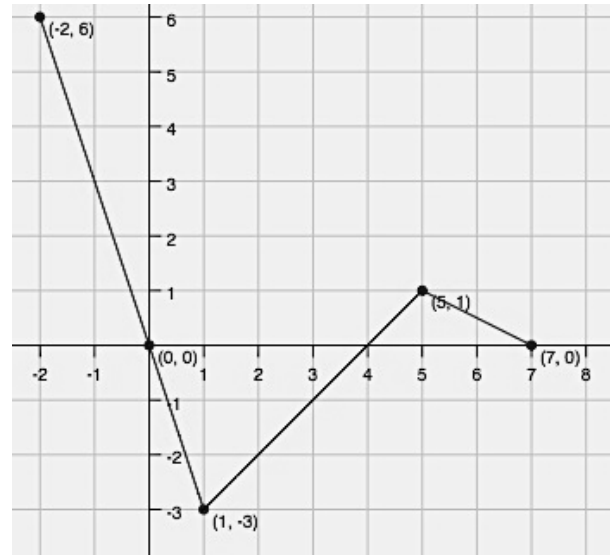10. $5|c + 3| - 1 = 9$ 11. $-2|2p - 3| - 1 = -11$

12. Explain why the equation $|m| = -3$ has no solution.

Set   Topic: Reading the domain and range from a graph

State the domain and range of the piece-wise functions in the graph. Use interval notation.
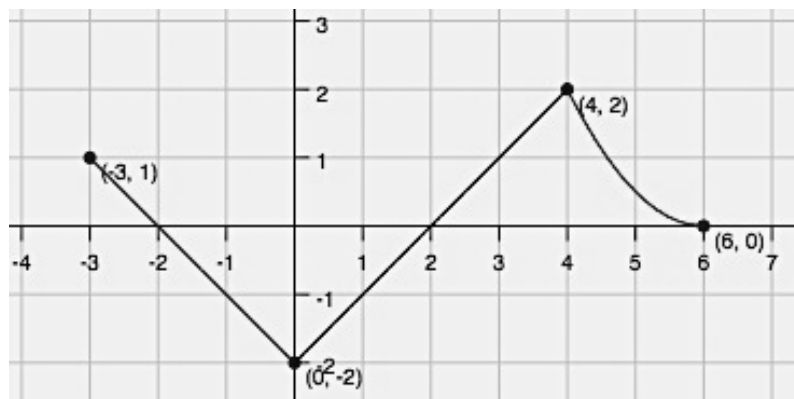
13.   D: _____

   R: _____

14.   D: _____

   R: _____

For each of the graphs below write the interval that defines each piece of the graph. Then write the domain of the entire piece-wise function.

Example: (Look at the graph in #14. Moving left to right. <u>Piece-wise functions use set notation.</u>)
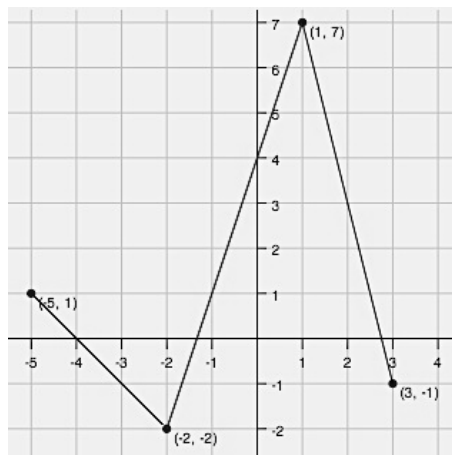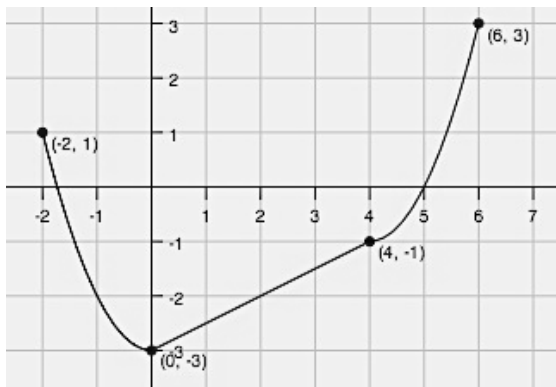
interval 1 $-3 \leq x < 0$
interval 2 $0 \leq x < 4$
interval 3 $4 \leq x \leq 6$ **Domain**: $[-3,6]$ (We can use interval notation on the domain, if it's continuous.)

Pay attention to your inequality symbols!
You do not want the pieces of your graph to overlap. Do you know why?
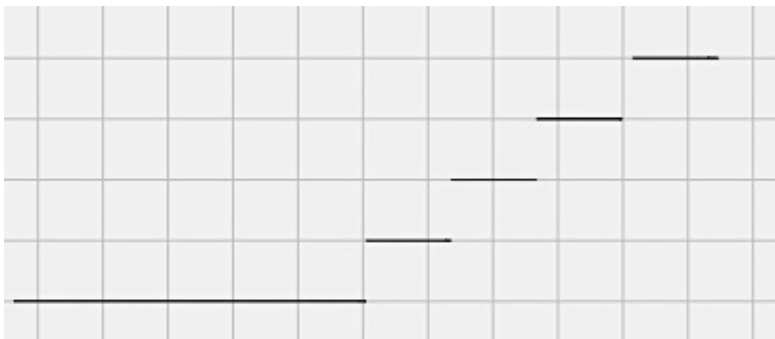
15. interval 1 _____

     interval 2 _____

     interval 3 _____

     Domain: _____

16. interval 1 _____

     interval 2 _____

   interval 3 _____

     Domain: _____

17.   So far you've only seen continuous piece-wise defined functions, but piece-wise functions can also be non-continuous. In fact, you've had some real life experience with one kind of non-continuous piece-wise function. The graph below represents how some teachers calculate grades. Finish filling in the piece-wise equation. Then label the graph with the corresponding values.

$$f(x) = \begin{cases} A, & \underline{\quad} \ x \ \underline{\quad} \\ B, & \underline{\quad} \ x \ \underline{\quad} \\ C, & \underline{\quad} \ x \ \underline{\quad} \\ D, & \underline{\quad} \ x \ \underline{\quad} \\ F, & \underline{\quad} \ x \ \underline{\quad} \end{cases}$$
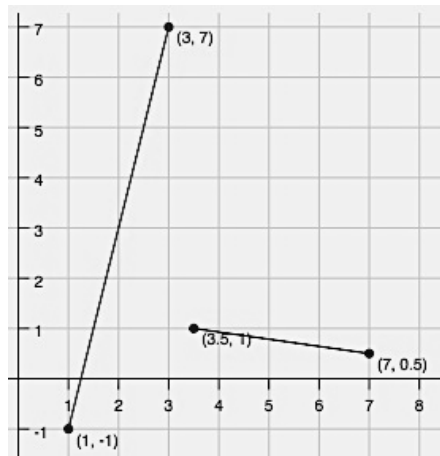
Write the piece-wise equations for the given graphs.

18.
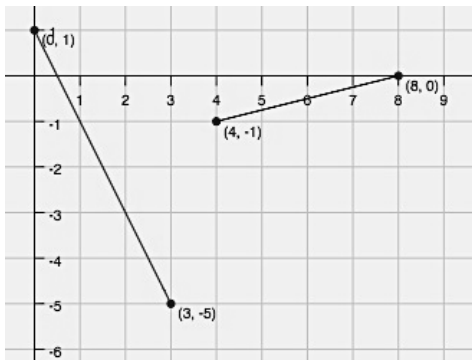
19.

Go

Topic: Transformations on quadratic equations

Beginning with the parent function $f(x) = x^2$, write the equation of the new function $g(x)$ that is a transformation of $f(x)$ as described. Then graph it.

20. Shift $f(x)$ left 3 units, stretch vertically by 2, reflect $f(x)$ vertically, and shift down 5 units.

$g(x) =$ _____

21. Shift $f(x)$ right 1, stretch vertically by 3, and shift up 4 units.

$g(x) =$ _____

22. Shift $f(x)$ up 3 units, left 6, reflect vertically, and stretch by ½

$g(x) =$ _____