

Questions on 4.3 HW?

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$y = x^2 + 8x + 7$
 $y = -(x + 3)^2 + 9$

3. $y = 6x^2 + 7x - 20$
 $a=6$
 $b=7$
 $c=-20$
 $x = \frac{-7 \pm \sqrt{7^2 - 4 \cdot 6 \cdot -20}}{2 \cdot 6} =$
 $\frac{-7 \pm \sqrt{529}}{12}$
 $\frac{-7 \pm 23}{12}$
 $\frac{-7+23}{12}$ and $\frac{-7-23}{12}$
 $\frac{16}{12} = \frac{4}{3}$ and $\frac{-30}{12} = \frac{-5}{2}$

6. $y = \frac{1}{2}(x - 1)^2 - 2$

e indicated form of the function.

8. Absolute value equation

8.50 x 11.00 in

11. $-s$; $s = 4$

12. $-t$; $t = -7$
 $-(-7) = 7$

13. $-x$; $x = 0$

14. -

15. $|v|$; $v = -25$

$| -25 | = 25$

16. $-(a)$; $a = -25$

17. -

18. $| -(-p) |$; $p = -6$

$| -(-6) | = | 6 | = 6$

19. $| -(-q) |$; $q = 8$

20. -

8.50 x 11.00 in

16. $-(a)$; $a = -25$

17. $-(-n)$; $n = -2$

19. $| -(-q) |$; $q = 8$

20. $-| -(-r) |$; $r = -9$
 $-| -(++9) | = -|-9|$
 $= -9$

8.50 x 11.00 in

Finishing 4.3 part 3

Part III

6. The graph below is another example of an absolute value function. The equation of this function can be written two ways:

as an absolute value function: $f(x) = |x + 3|$

or as a piece-wise: $f(x) = \begin{cases} -x-3, & x < -3 \\ x+3, & x \geq -3 \end{cases}$

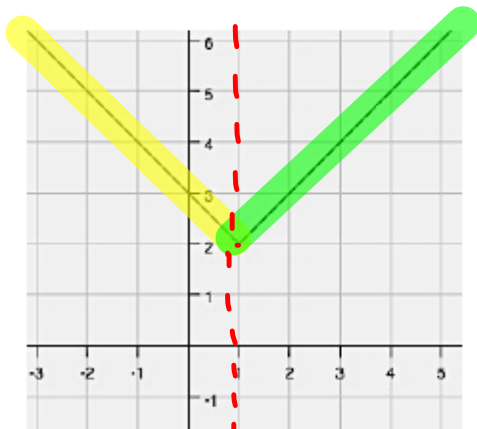


How do these two equations relate to each other?

same, but one of the pieces is \ominus and one is \oplus

Below are graphs and equations of more linear absolute value functions. Write the piece-wise function for each. See if you can create a strategy for writing these equations

7.



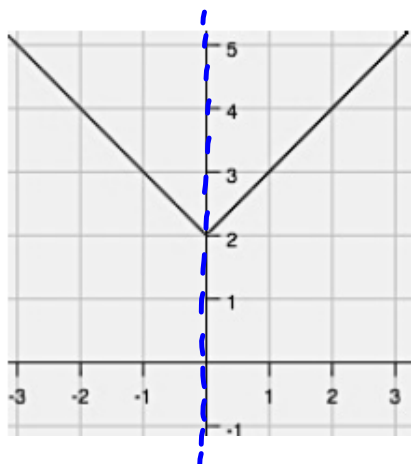
~~$-(x-1)+2 = -x+1+2 = -x+3$~~
 $-(x-1)+2 = -x+1+2 = -x+3$

Absolute value: $f(x) = |x - 1| + 2$

Piece-wise: ~~$f(x) =$~~

$f(x) = \begin{cases} -(x-1)+2, & x < 1 \\ (x-1)+2, & x \geq 1 \end{cases}$

8.



Absolute value: $f(x) = |x| + 2$

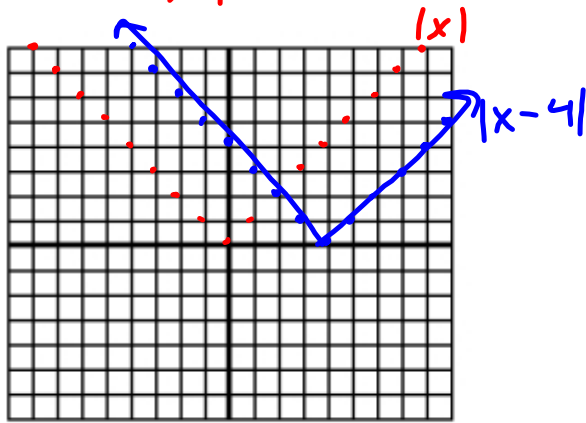
Piece-wise: ~~$f(x) =$~~

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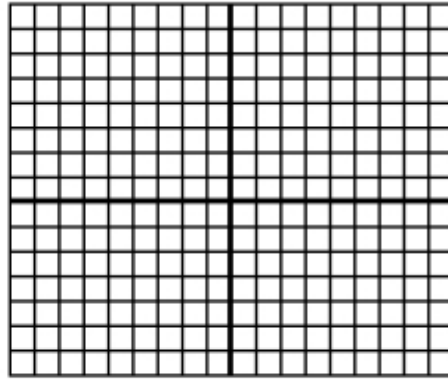
$f(x) = \begin{cases} -(x)+2, & x < 0 \\ (x)+2, & x \geq 0 \end{cases}$

Graph the following linear absolute value piece-wise functions.

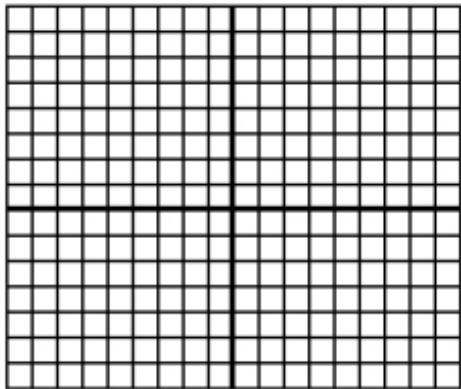
$$9. f(x) = |x - 4| = \begin{cases} -(x - 4), & x < 4 \\ (x - 4), & x \geq 4 \end{cases}$$



$$10. f(x) = |x| + 1 = \begin{cases} -(x) + 1, & x < 0 \\ (x) + 1, & x \geq 0 \end{cases}$$



11.



Piece-wise: $f(x) = \begin{cases} -3(x + 2) + 1, & x < -2 \\ 3(x + 2) + 1, & x \geq -2 \end{cases}$

Absolute Value: $f(x) =$

12. Explain your method for doing the following:

- Writing piecewise linear absolute value functions from a graph.
- Writing piecewise linear absolute value functions from an absolute value function.
- Graphing absolute value functions (from either a piecewise or an absolute value equation).

4.4 Reflections of a Bike Lover

A Practice Understanding Task



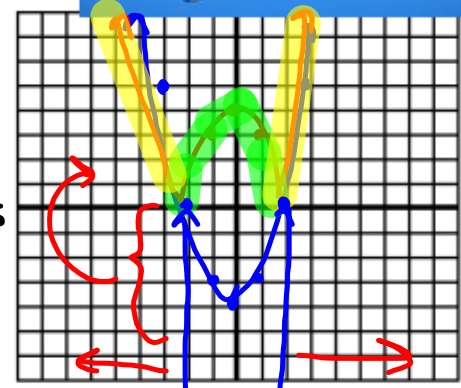
1. Graph the function $f(x) = x^2 - 4$
2. Graph $g(x) = |f(x)|$ on the same set of axes as $f(x)$.

3. Explain what happens graphically.

the negative y-values become positive & reflect across the x-axis

4. Write the piecewise function for $g(x)$.

$$f(x) = \begin{cases} -(x^2 - 4), & -2 \leq x \leq 2 \\ (x^2 - 4), & x < -2 \text{ and } x > 2 \end{cases}$$



5. Explain your process for creating this piecewise function.

6. Graph the function $f(x) = (x + 1)^2 - 9$

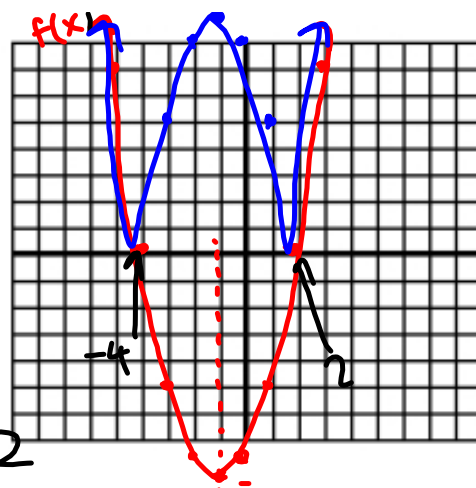
7. Graph $g(x) = |f(x)| = |(x + 1)^2 - 9|$

8. Explain what happens graphically?

negative y-values become +

9. Write the piece-wise function for $g(x)$.

$$g(x) = \begin{cases} -[(x+1)^2 - 9], & -4 \leq x \leq 2 \\ (x+1)^2 - 9, & x < -4 \text{ and } x > 2 \end{cases}$$



10. What do you have to think about when writing any absolute value piece-wise function?

Grade sheets

Total points possible - total points earned

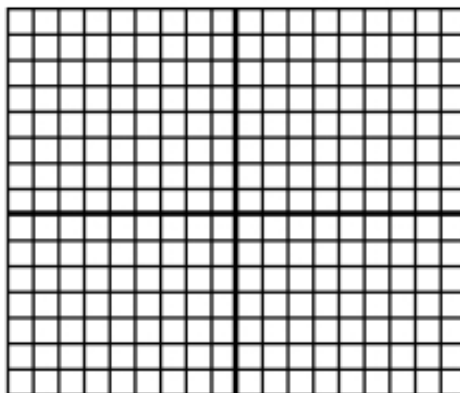
① Assignments:
Assessments:

② My plan to make up those points is . . .

Graph the following absolute value functions and write the corresponding piecewise functions for each.

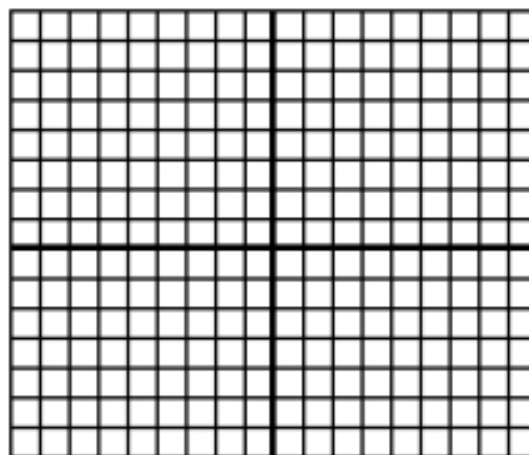
11. $g(x) = |x^2 - 4| + 1$

Piecewise:



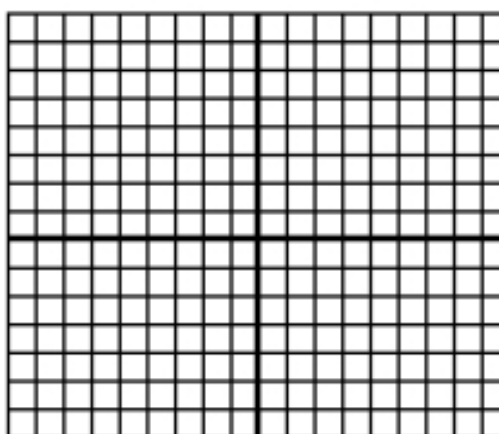
12. $g(x) = |(x + 2)^2 - 4| + 3$

Piecewise:



13. $g(x) = |(x - 3)^2 - 1| - 2$

Piecewise:



Homework

Finish 4.4 "Ready, Set, Go"