

Questions on 4.4 HW?

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Topic: Reflecting Images

1. Reflect $\triangle ABC$ across the line $y = x$. Label the new image as $\triangle A'B'C'$. Label the coordinates of points $A'B'C'$. Connect segments AA' , BB' , and CC' . Describe how these segments are related to each other and to the line $y = x$.

x & y values change signs.

2. On the graph provided to the right, draw a 5-sided figure in the 4th quadrant. Label the vertices of the pre-image. Include the coordinates of the vertices. Reflect the pre-image across the line $y = x$. Label the image, including the coordinates of the vertices.

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4. *Figure 1* is the graph of a sound wave. The height (or depth) of the graph indicates the magnitude and direction $f(x)$ reaches from the norm or the undisturbed value. In this case that would be the x-axis. When we are only concerned with the distance from the x-axis, we refer to this distance as the **amplitude**. Since distance alone is always positive, **amplitude** can be described as the absolute value of $f(x)$. Use the graph of a sound wave to sketch a graph of the absolute value of the amplitude or $y = |f(x)|$.

figure 1

5. *Figure 2* is a table of values for $g(x) = (x + 3)^2 - 9$. What values in the table would need to change if the function were redefined as $h(x) = |g(x)|$?

figure 2

x	$g(x)$
-8	16
-7	7
-6	0
-5	7
-4	16

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Simplify. Write the answers in simplest radical form. Some answers may consist of numbers with no radical sign.

8. $(-7 - 2\sqrt{5}) + (6 + 8\sqrt{5})$

9. $(-10 - \sqrt{13}) - (-11 + 5\sqrt{13})$
 $-10 - \sqrt{13} + 11 - 5\sqrt{13}$
 $1 - 6\sqrt{13}$

10. $(4 - \sqrt{50}) + (7 + 3\sqrt{18}) - (12 - 2\sqrt{72})$

11. $\sqrt{98} + \sqrt{8}$

12. $(-2 - 7\sqrt{5}) + (2\sqrt{125}) - 3\sqrt{625}$

13. $(3r^2 - 8\sqrt{3b^2}) - (2r^2 - 3\sqrt{27b^2})$

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$\sqrt{x^2} = x$
 $\sqrt{5} + (2\sqrt{125}) - 3\sqrt{625}$
 13. $(3r^2 - 8\sqrt{3}b^2) - (2r^2 - 3\sqrt{27}b^2)$
 $3r^2 - 8\sqrt{3}b^2 - 2r^2 + 3\sqrt{27}b^2$
 $r^2 - 8b\sqrt{3} + 3b^3\sqrt{3}$
 $r^2 - 8b\sqrt{3} + 9b\sqrt{3}$
 $r^2 + b\sqrt{3}$

that $x \geq 0$. Simplify $\sqrt{x} + \sqrt{x^3} + \sqrt{x^5} + \sqrt{x^7} + \sqrt{x^9} + \sqrt{x^{11}} + \sqrt{x^{13}} + \sqrt{x^{15}}$.
 tional exponents.)

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Mini-test Tuesday
 mod 4
 pg 9 # 1-11

pg 17 # 11-20

Graphing Absolute Value Functions WKS

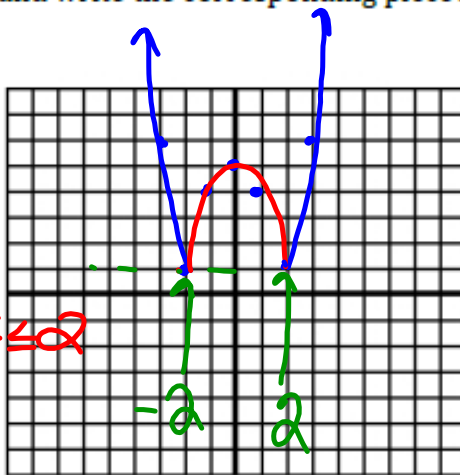
Finish 4.4 from page 19

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

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

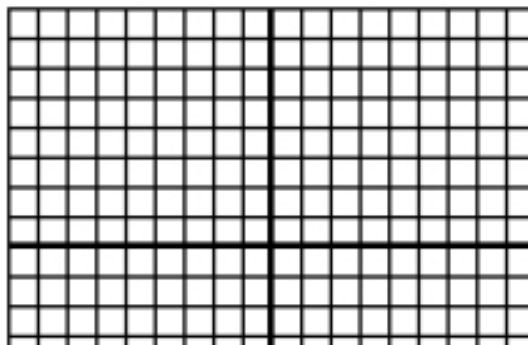
Piecewise:

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



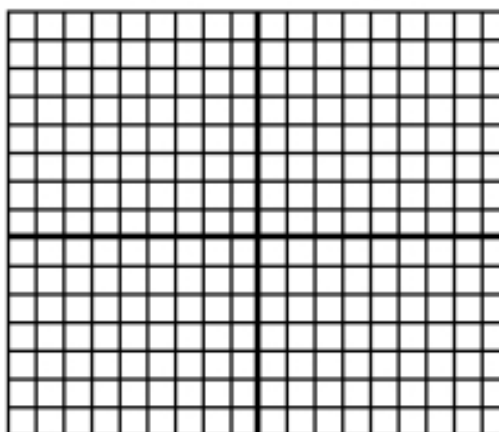
$$12. g(x) = |(x + 2)^2 - 4| + 3$$

Piecewise:



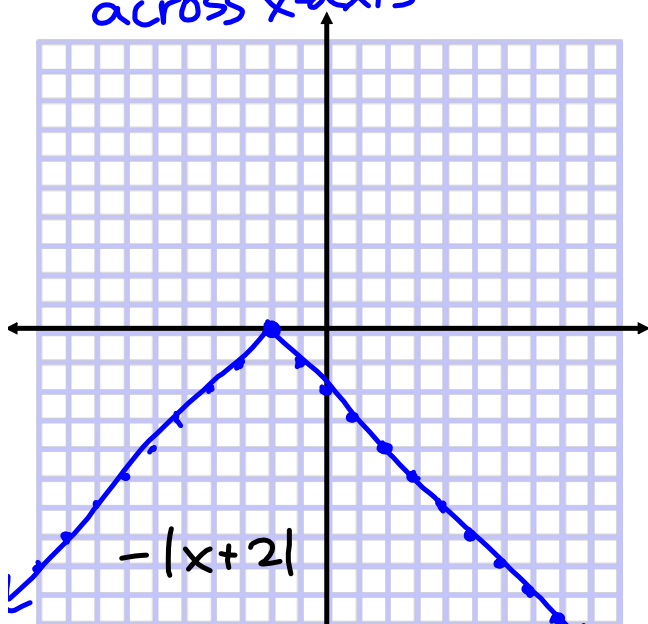
$$13. g(x) = |(x - 3)^2 - 1| - 2$$

Piecewise:



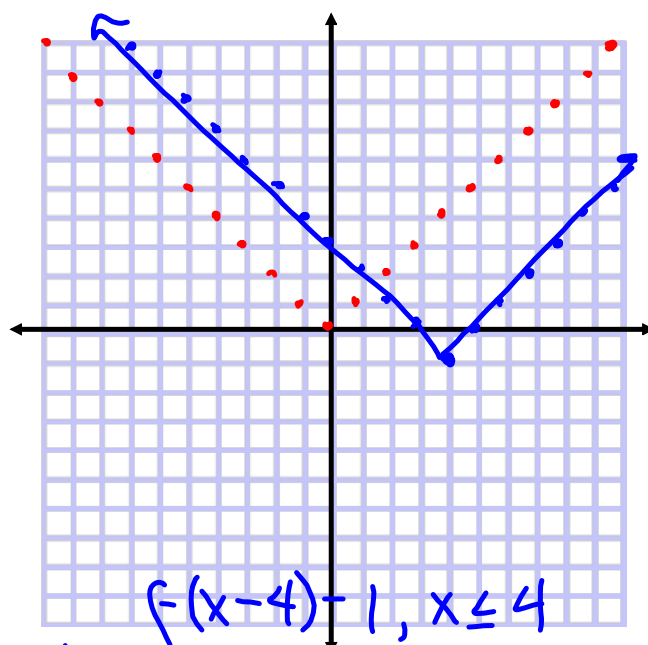
$$y = -|x + 2|$$

reflected
across x-axis



$$y = \begin{cases} + (x+2), & x \leq -2 \\ - (x+2), & x > -2 \end{cases}$$

$$y = |x - 4| - 1$$

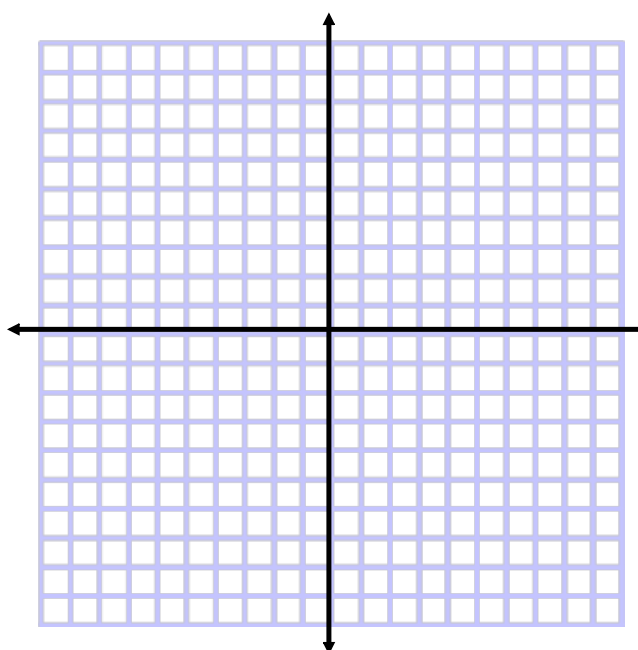
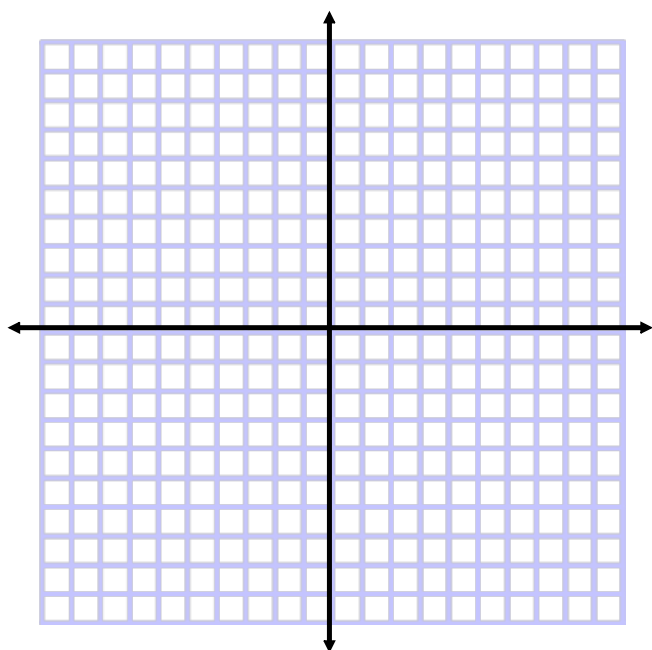


$$y = \begin{cases} -(x-4) - 1, & x \leq 4 \\ (x-4) - 1, & x > 4 \end{cases}$$

$$y = - |(x - 4)^2 + 4|$$

$\rightarrow 4$ $\uparrow 4$

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



Homework

Finish "Graphing Absolute
Value Functions" WKS

* Write in a piecewise function
for each