

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  $y = x$ .

(180° rotation)

2. On the graph provided to the right, draw a 5-sided figure in the 4<sup>th</sup> 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.

8.50 x 11.00 in

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

$\sqrt{50} = \sqrt{25 \cdot 2} = 5\sqrt{2}$

$3\sqrt{18} = 3\sqrt{9 \cdot 2} = 3 \cdot 3\sqrt{2} = 9\sqrt{2}$

$2\sqrt{72} = 2 \cdot \sqrt{4 \cdot 4 \cdot 9} \cdot \sqrt{2} = 2 \cdot 2 \cdot 3 \cdot \sqrt{2} = 12\sqrt{2}$

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

$-10 + 11 - \sqrt{13} + 5\sqrt{13}$

$1 - 6\sqrt{13}$

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

$4 - 5\sqrt{2} + 7 + 9\sqrt{2} - 12 + 12\sqrt{2}$

$-1 + 16\sqrt{2}$

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

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

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

14. Assume that  $x \geq 0$ . Simplify  $\sqrt{x} + \sqrt{x^3} + \sqrt{x^5} + \sqrt{x^7} + \sqrt{x^9} + \sqrt{x^{11}} + \sqrt{x^{13}} + \sqrt{x^{15}}$ .  
 (Hint: Use rational exponents.)

8.50 x 11.00 in

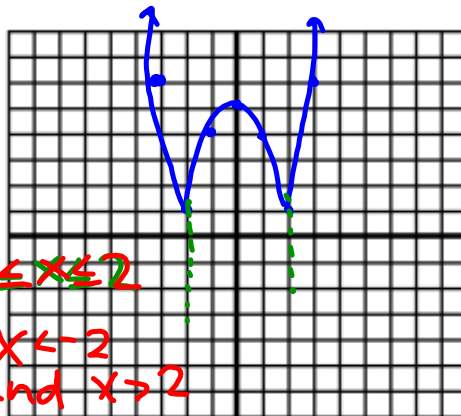
## Finish 4.4 from page 19

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

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

Piecewise:

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

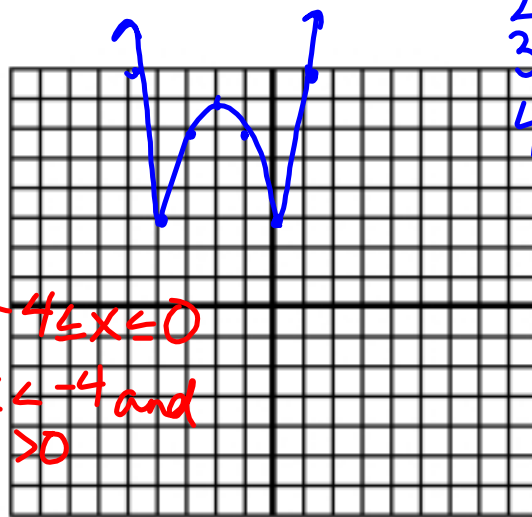


| x  | g(x) |
|----|------|
| -4 | 13   |
| -3 | 6    |
| -2 | 1    |
| -1 | 4    |
| 0  | 5    |
| 1  | 4    |
| 2  | 1    |
| 3  | 6    |
| 4  | 13   |

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

Piecewise:

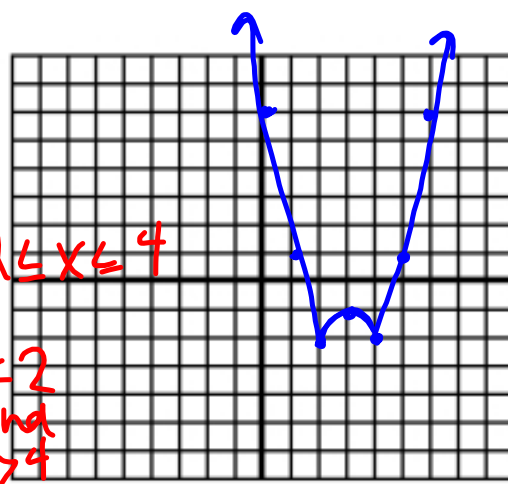
$$g(x) = \begin{cases} -[(x+2)^2 - 4] + 3, & -4 \leq x \leq 0 \\ (x+2)^2 - 4 + 3, & x < -4 \text{ and } x > 0 \end{cases}$$



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

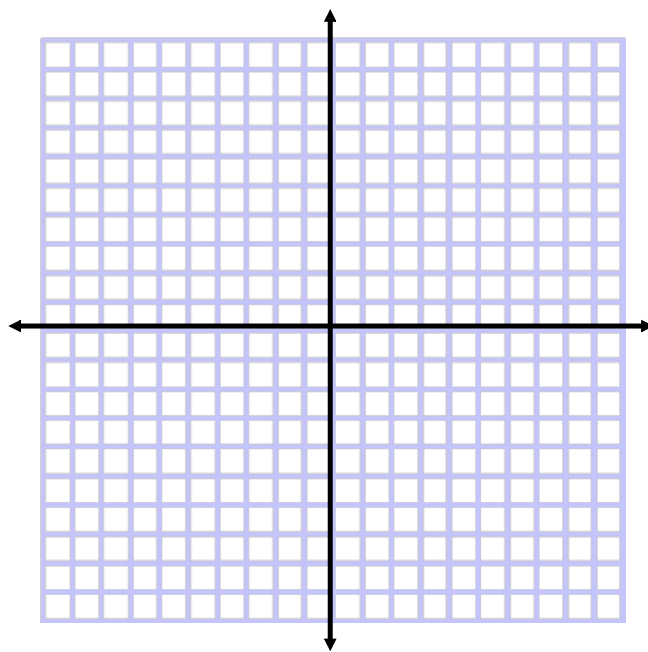
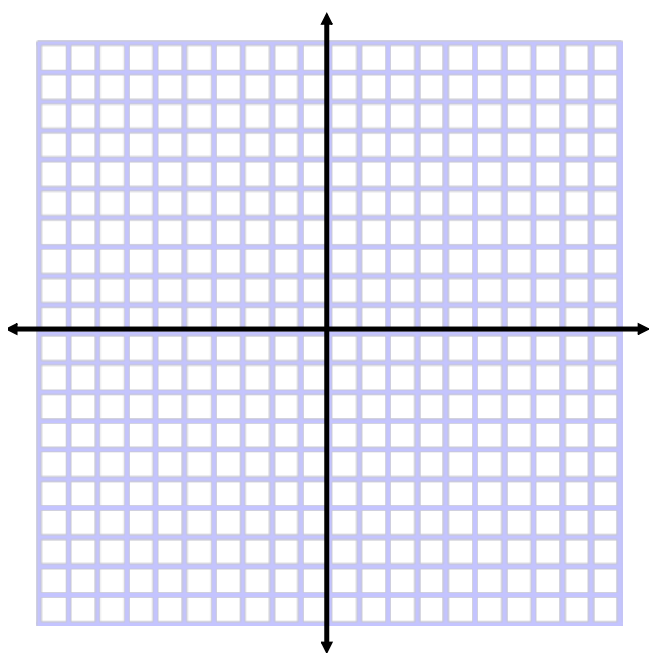
Piecewise:

$$g(x) = \begin{cases} -[(x-3)^2 - 1] - 2, & 2 \leq x \leq 4 \\ (x-3)^2 - 1 - 2, & x < 2 \text{ and } x > 4 \end{cases}$$



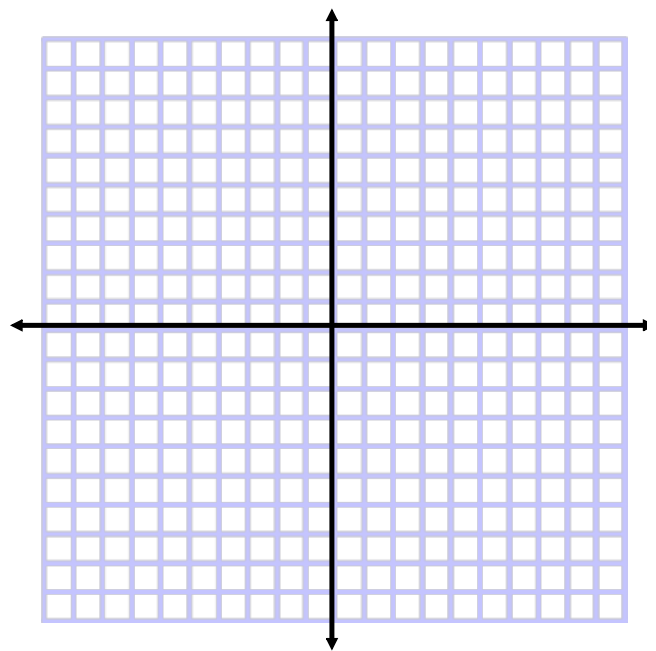
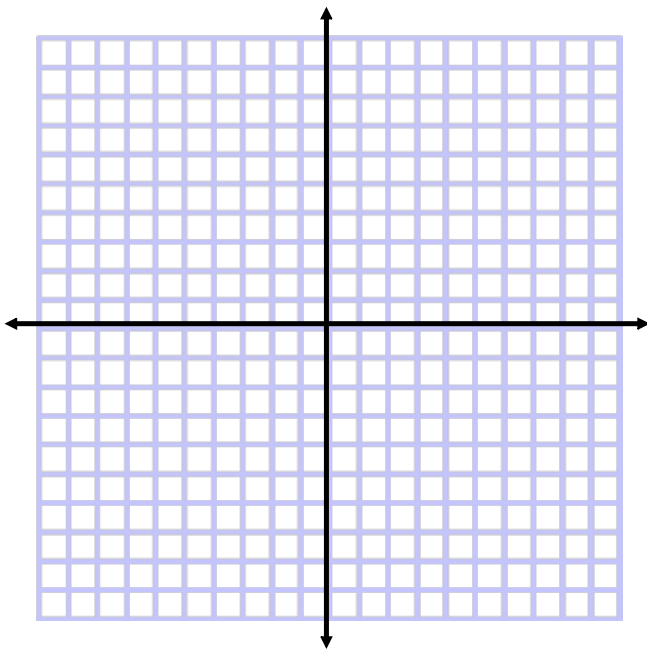
$$y = -|x + 2|$$

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



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

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



Homework

Finish "Graphing Absolute

Value Functions" WKS

\* Write a piecewise function\*



