

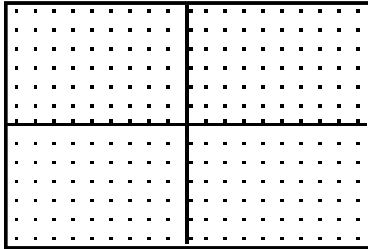
Summary	
This is not a single lesson, but a set of exercises to help student become fluent in graphing linear, quadratic, absolute value, and square root functions using transformations. The worksheets can be used as a template to create more exercises for the graphs of sine and cosine functions.	
Utah State Core Standard	
Perform the transformations of stretching, shifting, and reflecting the graphs of linear, absolute value, quadratic, and radical functions.	
Desired Results	
Benchmark/Enduring Understanding	
Students will understand that functions can be graphed using transformations if they know they graph of the parent function.	
Essential Questions	Skills
How can we use transformations to quickly sketch the graph of functions?	<ul style="list-style-type: none"> • Graphing the parent functions for linear, quadratic, absolute value and square root functions. • Using transformations to graph functions
Assessment Evidence	
This entire set of problems could be used as assessment for graphing functions. The last two pages are specified as a quiz, assessing students' ability to graph functions and to write the equation of the function, given a graph.	

Instructional Activities
Most teachers use these exercises as warm-up activities or quick quizzes at the beginning of class. Each page can be cut in half to be used in two class periods.
Materials Needed
Copies of worksheets

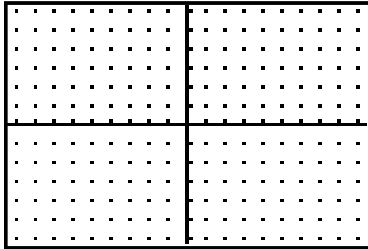
Quick Draw McGraw--No calculators may be used.

Graph each function. You must have at least two accurate points on each side of the line of symmetry or three accurate points on a linear function.

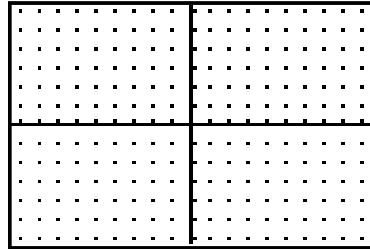
$$y = x^2 - 1$$



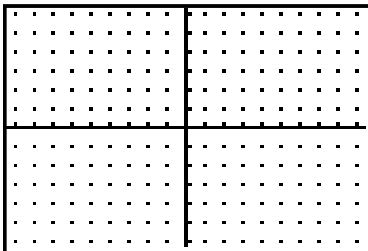
$$y = |x - 1|$$



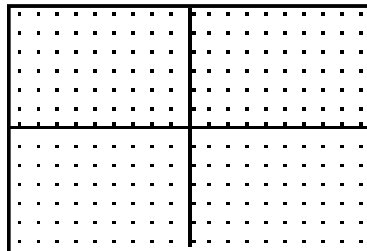
$$y = x - 1$$



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



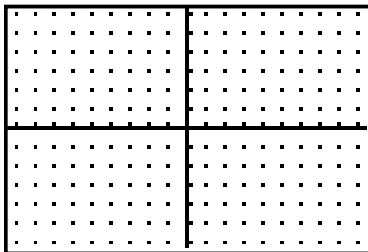
$$y = |x + 2| - 3$$



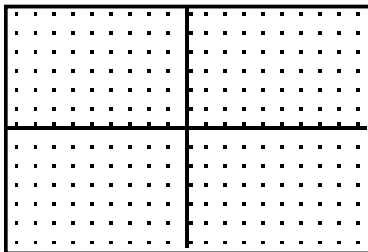
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Graph each quadratic function. You must have at least two accurate points on each side of the line of symmetry.

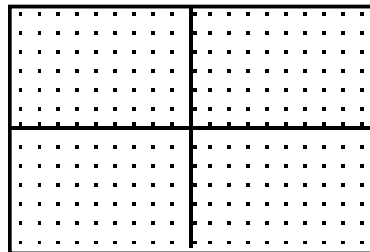
$$y = \frac{1}{2}x - 3$$



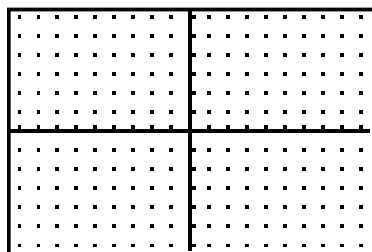
$$y = \frac{1}{2}x^2$$



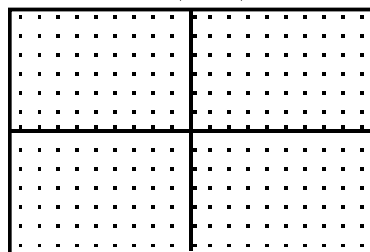
$$y = \frac{1}{2}|x - 2| - 4$$



$$y = (x + 3)^2 - 4$$



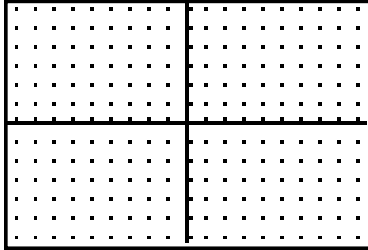
$$y = 2|x - 1| - 5$$



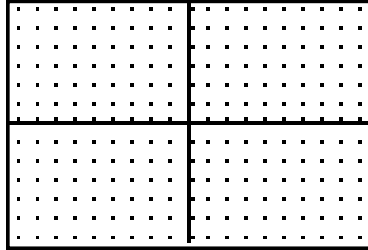
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Graph each quadratic function. You must have at least two accurate points on each side of the line of symmetry.

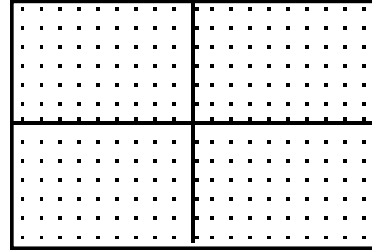
$$y = 2(x+3)^2 - 4$$



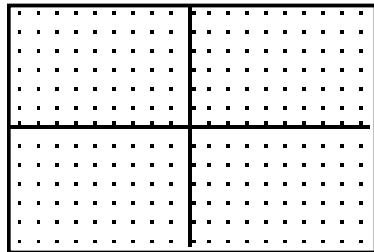
$$y = -2(x-3)^2 - 4$$



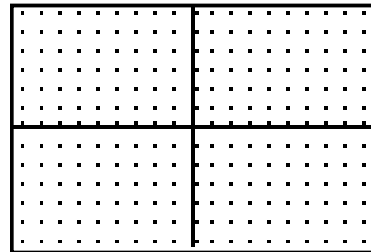
$$y = \frac{1}{2}(x+2)^2 + 1$$



$$y = -\frac{1}{2}(x-3)^2 + 2$$



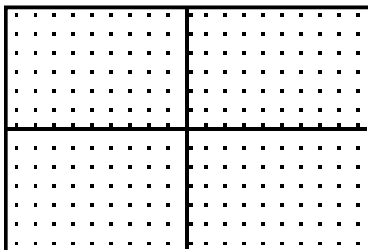
$$y = 3x^2 - 5$$



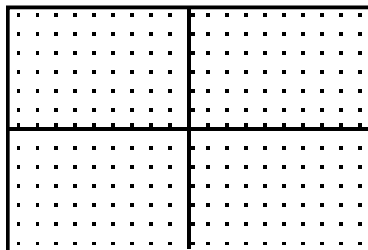
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Graph each quadratic function. You must have at least two accurate points on each side of the line of symmetry.

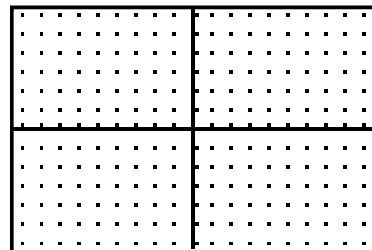
$$y = 3(x-1)^2 - 5$$



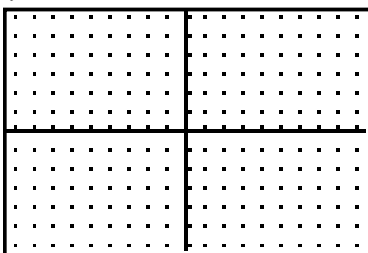
$$y = -3(x-1)^2 + 5$$



$$y = -\frac{1}{2}(x-1)^2 + 4$$

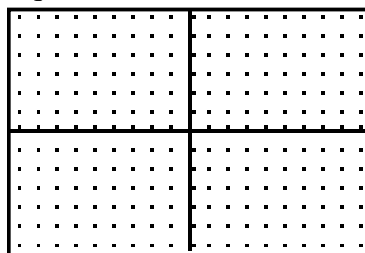


$$y = 2(x+1)^2 - 3$$



Write your own equation with at least three transformations, and graph it.

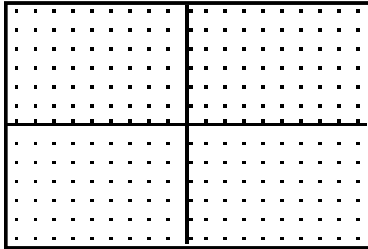
Equation:



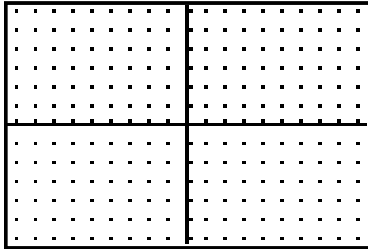
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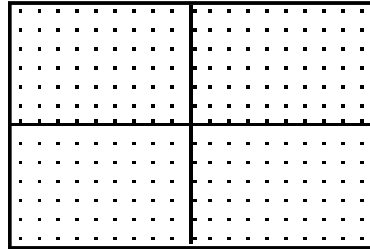
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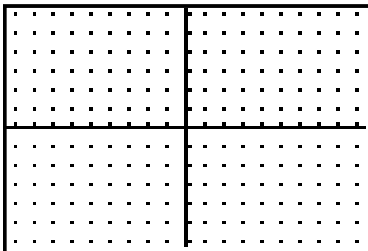
$$y = |x - 1|$$



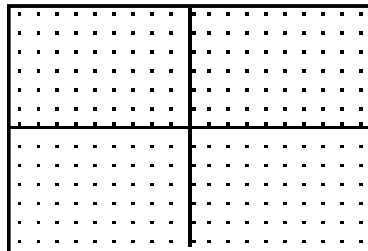
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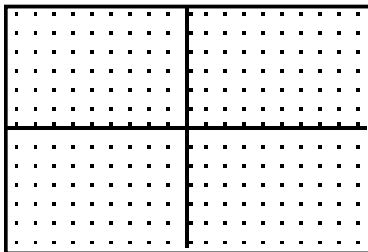
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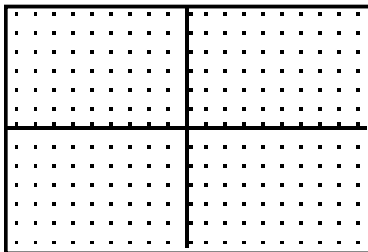
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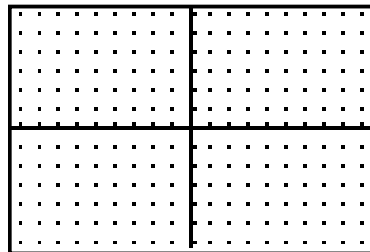
$$y = \frac{1}{2}x - 3$$



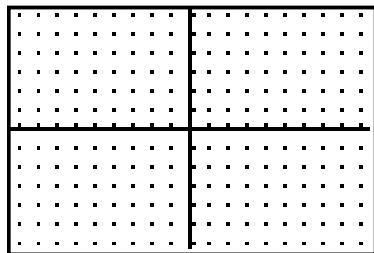
$$y = \frac{1}{2}x^2$$



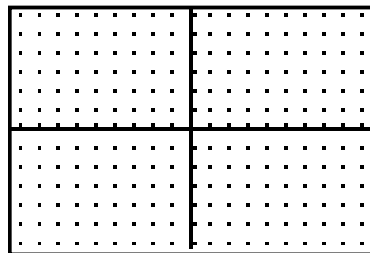
$$y = \frac{1}{2}|x - 2| - 4$$



$$y = (x + 3)^2 - 4$$



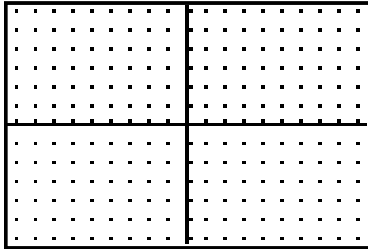
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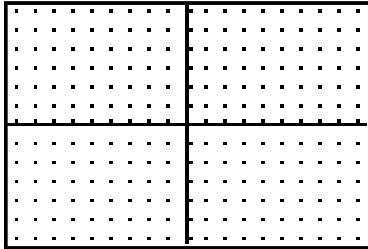
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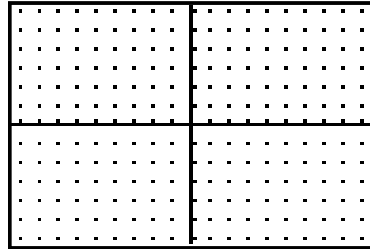
$$y = 2|x + 3| - 4$$



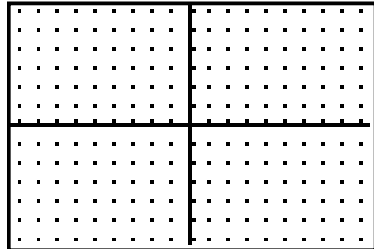
$$y = -2(x - 3)^2 - 4$$



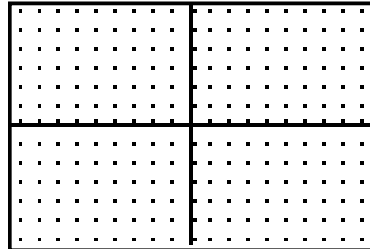
$$y = -2(x + 2) + 1$$



$$y = -\frac{1}{2}(x - 3)^2 + 2$$



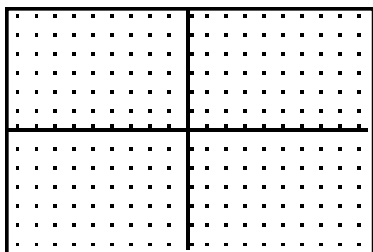
$$y = 3|x| - 5$$



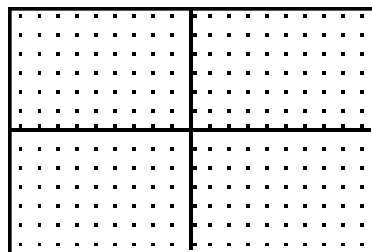
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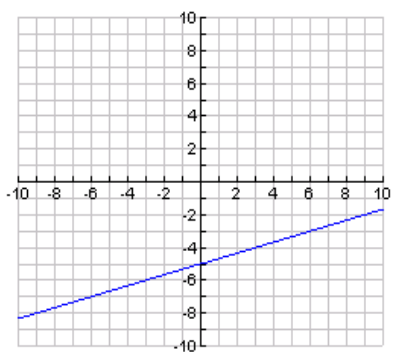
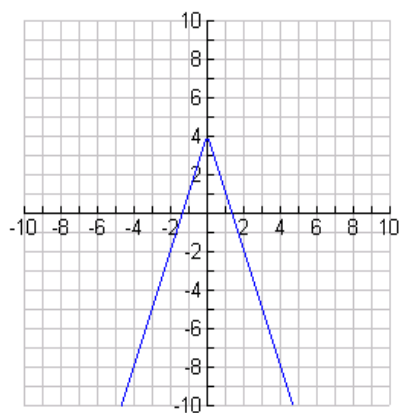
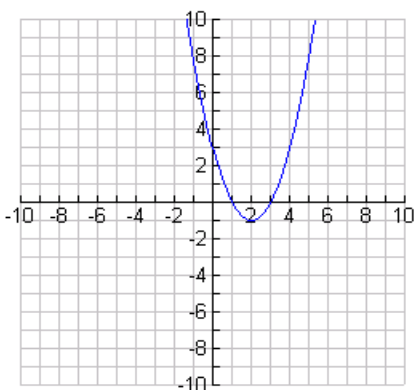
$$y = 3(x-1)^2 - 5$$



$$y = -3|x-2|^2 + 5$$

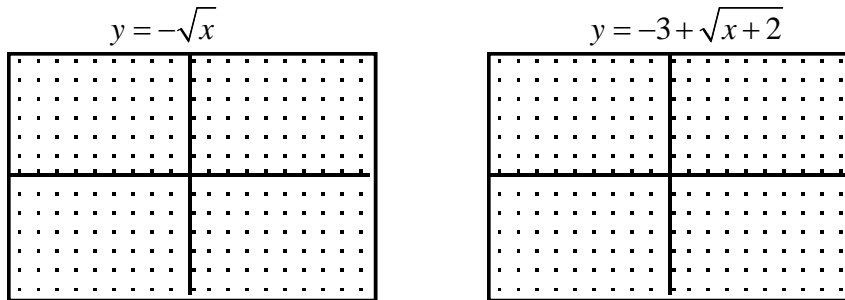
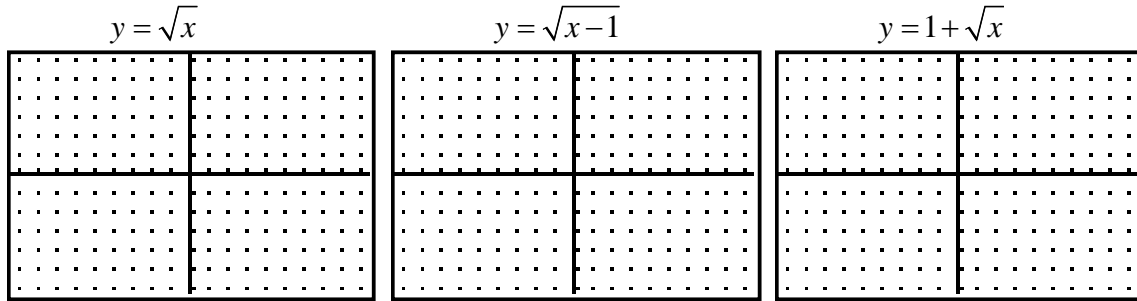


Write the equation of the functions graphed below:



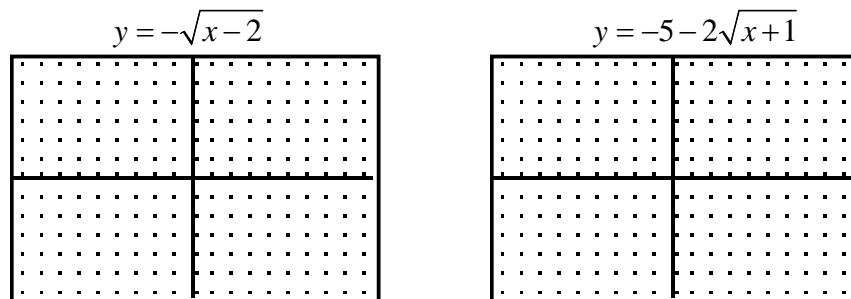
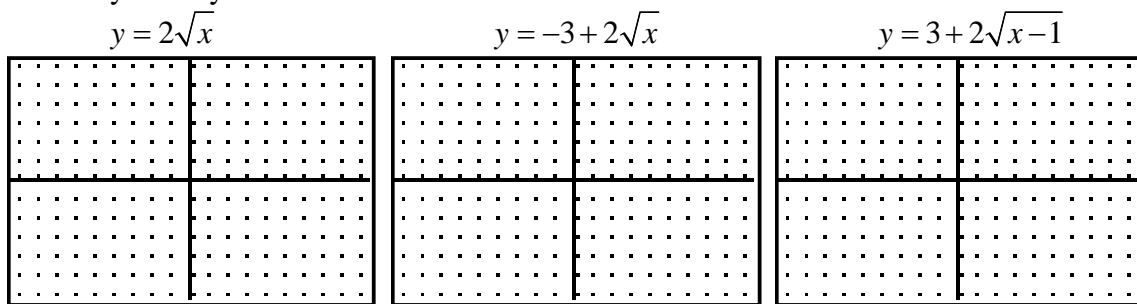
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Graph each function. You must have at least two accurate points on each side of the line of symmetry or three accurate points on a linear function.



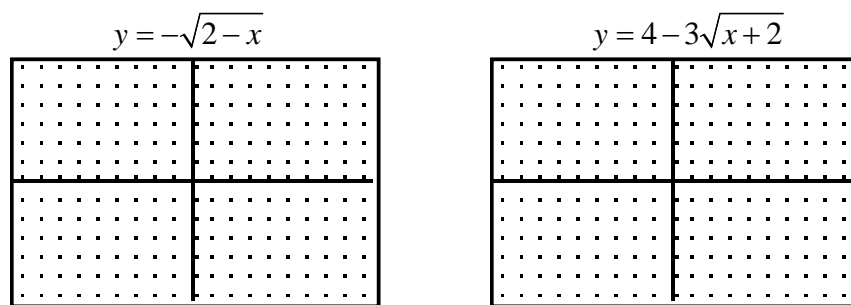
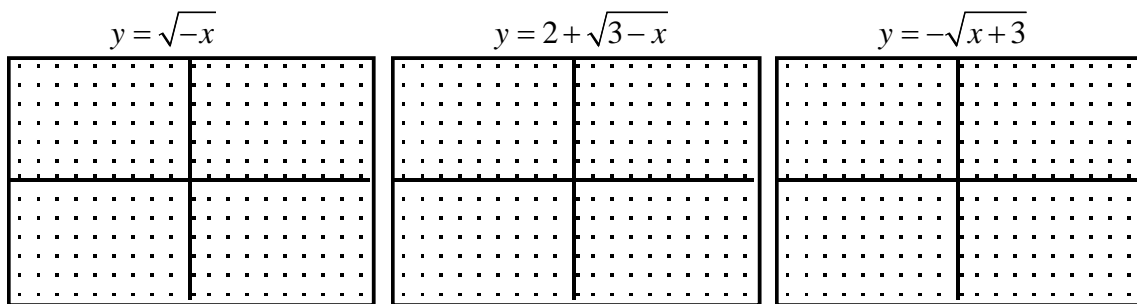
Quick Draw McGraw--No calculators may be used.

Graph each quadratic function. You must have at least two accurate points on each side of the line of symmetry.



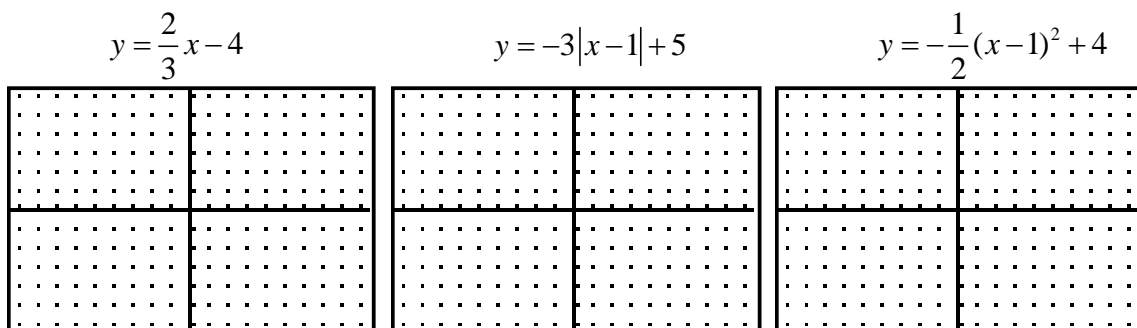
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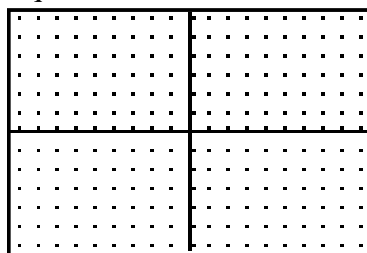
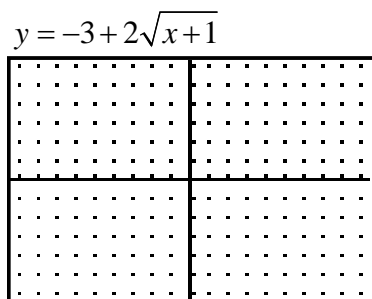
Quick Draw McGraw--No calculators may be used.

Graph each quadratic function. You must have at least two accurate points on each side of the line of symmetry.



Write your own radical equation with at least three transformations, and graph it.

Equation:



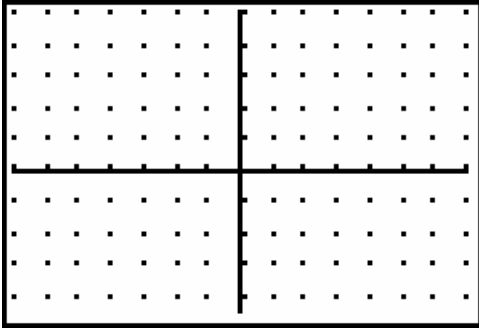
Name _____

Transformations Quiz

Period _____

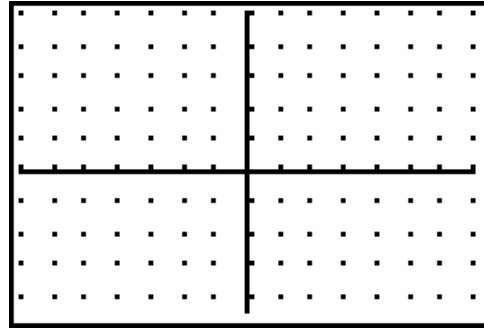
Sketch the graph of each function.

1. $y = -(x - 2)^2 + 3$



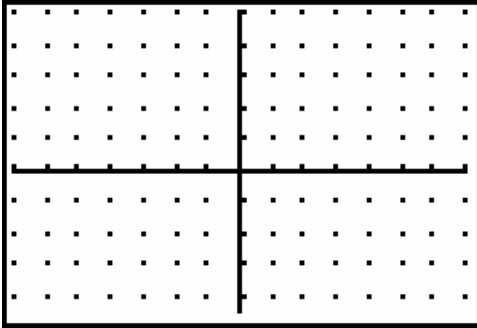
Domain =
Range =

4. $y = |x + 1| - 2$



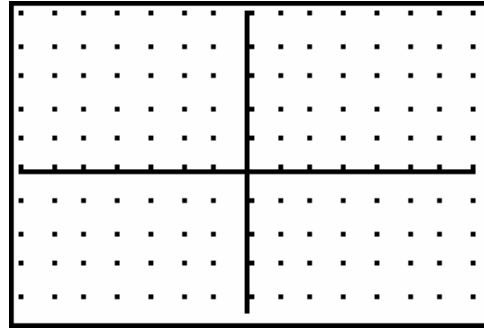
Domain =
Range =

2. $y = -x^2$



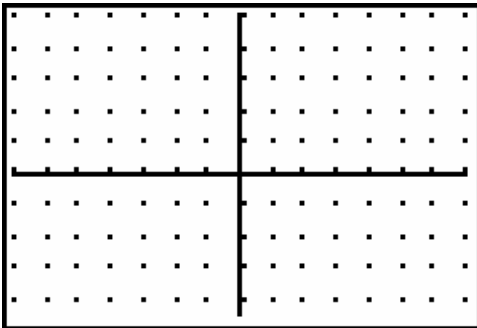
Domain =
Range =

5. $f(x) = |(x - 2)^2 - 4|$



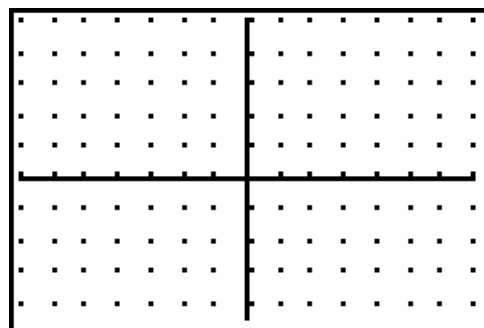
Domain =
Range =

3. $f(x) = 2(x+3) - 4$



Domain =
Range =

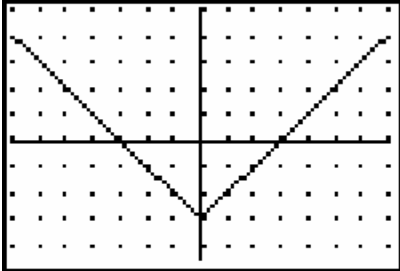
6. $2x + 3y = 6$



Domain =
Range =

Write the equation for each of the following graphs:

7. _____



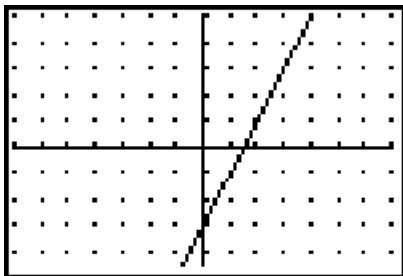
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Range =

8. _____



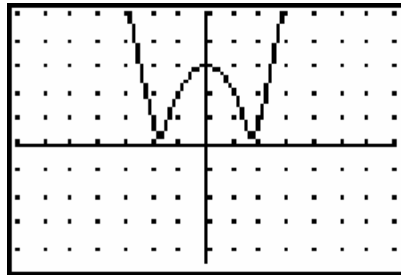
Domain =
Range =

9. _____



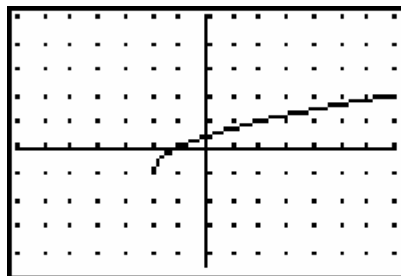
Domain =
Range =

10. _____



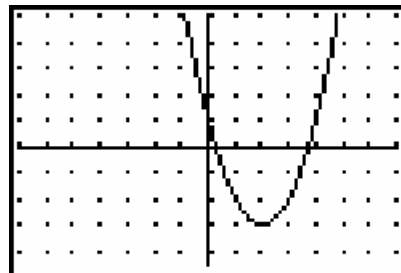
Domain =
Range =

11. _____



Domain =
Range =

12. _____



Domain =
Range =