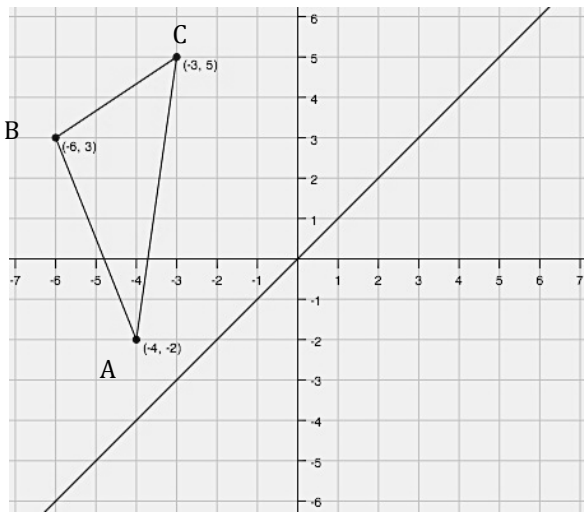


Ready, Set, Go!

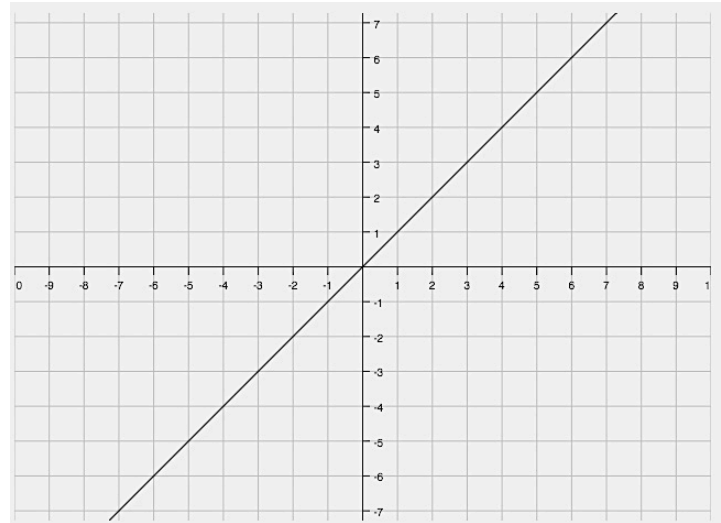
Ready

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 $y = x$.



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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.
3. A table of values for a four-sided figure is given in the first two columns. Reflect the image across the line $y = x$, and write the coordinates of the reflected image in the space provided.

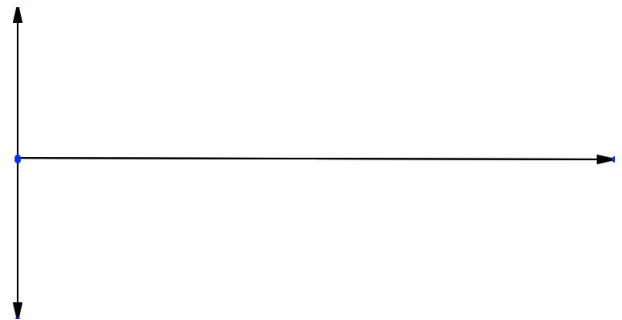
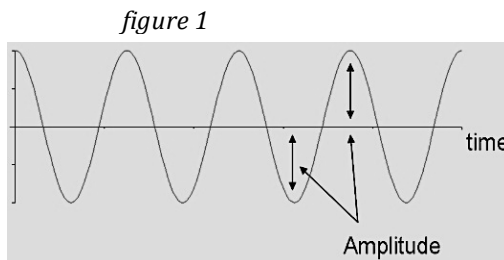
<i>A</i>	(-6,2)	<i>A'</i>	
<i>B</i>	(-4,5)	<i>B'</i>	
<i>C</i>	(-2,3)	<i>C'</i>	
<i>D</i>	(-3,-1)	<i>D'</i>	



Set

Topic: Absolute value of nonlinear functions

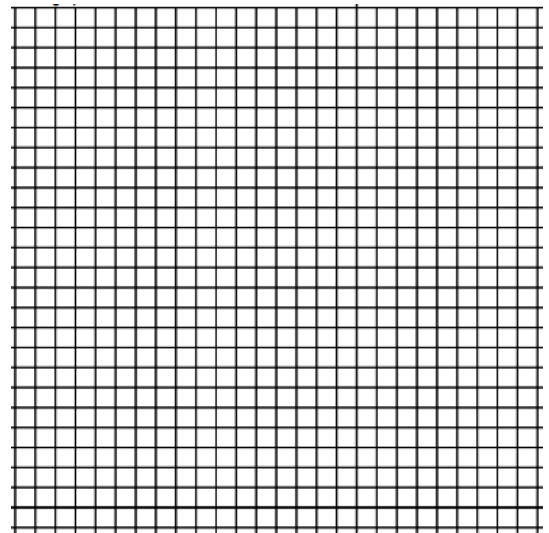
4. *Figure 1* is the graph of a sound wave. The height (or depth) of the graph indicates the magnitude and direction $f(x)$ reaches from the norm or the undisturbed value. In this case that would be the x-axis. When we are only concerned with the distance from the x-axis, we refer to this distance as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



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
-4	-5
-3	-8
-2	-9
-1	-8
0	0
1	7
2	16



6. Graph $h(x) = |g(x)|$.
7. Write the piece-wise equation for $h(x) = |g(x)|$, as defined in problem 6. Let the domain be all real numbers in the interval $[-8, 2]$



Go

Topic: Simplifying radical expressions.

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

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

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

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

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.)

