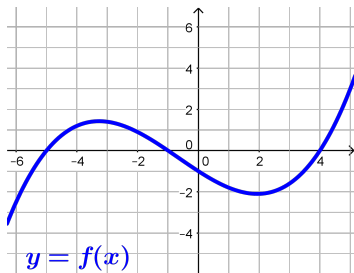


# Vertical Stretching of Graphs

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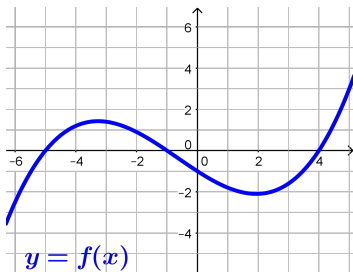
► Like our example in general, for any function  $y = f(x)$



# Vertical Stretching of Graphs

▶ Like our example in general, for any function  $y = f(x)$

Multiplying by  $-1$  to get:  $y = -1f(x)$  makes the  $y$ -value change sign at each point.

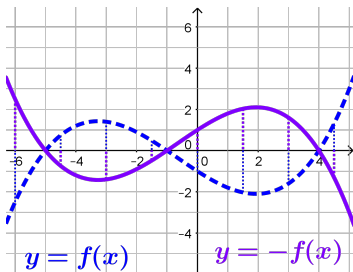
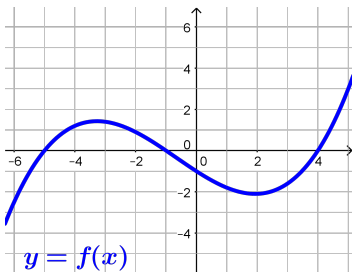


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With all positive  $y$ -values becoming negative, and all negative  $y$ -values becoming positive, we are reflecting across the  $x$ -axis

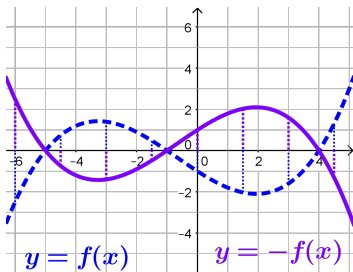
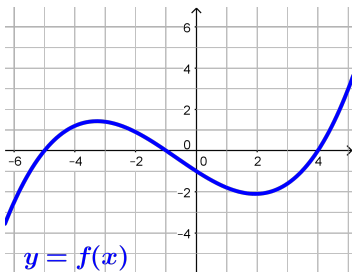


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The graph of  $y = -1 \cdot f(x)$  is the graph of  $y = f(x)$  reflected across the  $x$ -axis.