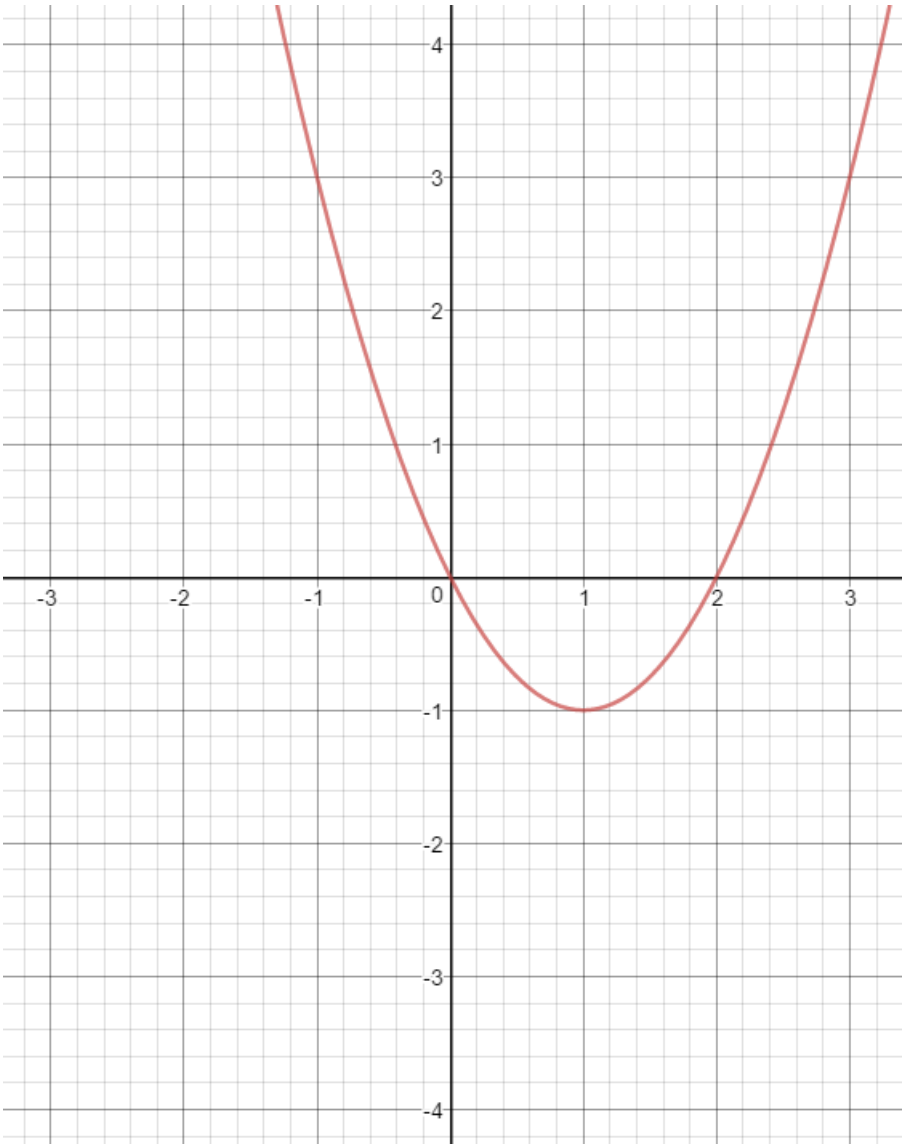
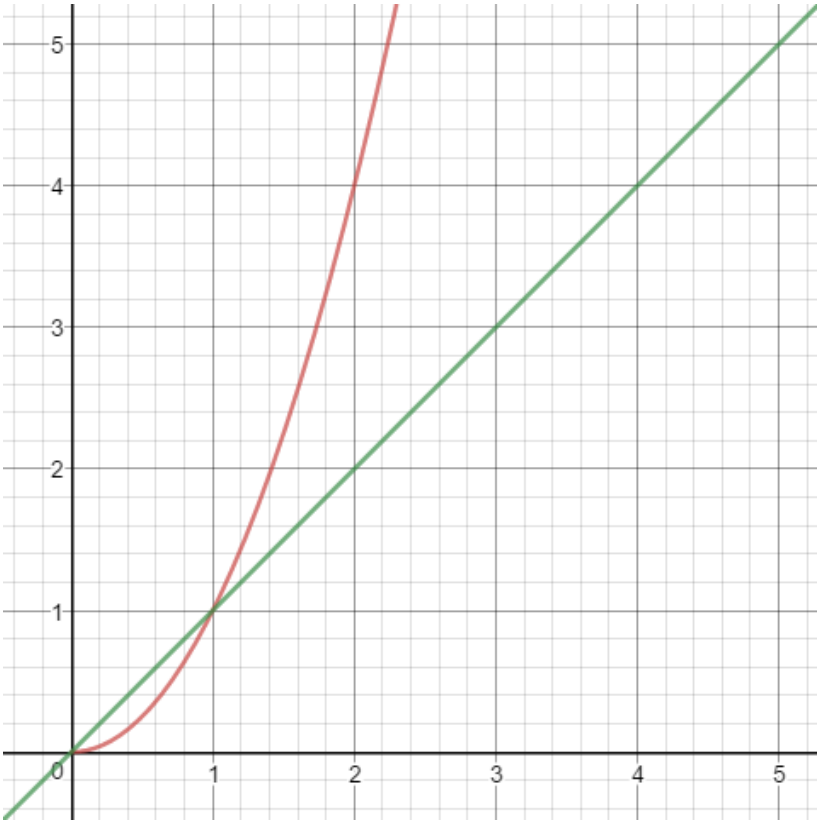
Linear transformations with Matrices lesson 5 - Equation of the image of a curve

Magic Monk Tutorials

1 Find the equation of the image of the curve $y = x^2 - 2x$ reflected in the x axis and plot this in the x-y plane.



2 **Find the equation of the line $y = x^2$ for $x \geq 0$ with the matrix $T = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$, and plot the result in the x-y plane. Note that also plotted is the line $y = x$.**



3 **Bonus difficult question: Apply the shear transformation $T = \begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$ to the unit circle $y^2 + x^2 = 1$.**

4 **Bonus difficult question: Find the equation of the line $y = x^2 + x + 1$ for $x \geq 0$ with the matrix $T = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$.**