Algebra
Activity 3a - Inverse Functions and Their Graphs

1. Find the inverse of the following linear equations.

   (a) $y = -2x + 5$

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

   (c) $y = 4(x - 3)$

   (d) $y = 2x$

2. What is the relationship between the slope of the above functions and their inverses? Why is this a natural consequence of the functions being inverses?

3. For each of the functions above, find the point of intersection between the linear function and its inverse? What do these points have in common. Why is this a natural consequence of the functions being inverses?

4. For each function above, graph the line, its inverse and the line $y = x$. What symmetry do you see in the graphs?

5. The inverse of the function $y = e^x$ is $y = \ln x$. Graph these two functions and the line $y = x$. What symmetry do you see in the graphs?

6. Graph $y = x^2$, $y = \sqrt{x}$ and $y = x$. What symmetry do you see in the graphs? What is different about this set of graphs compared to the previous graphs?