

Test 4, '15
✓ Spring Typo #1

$$f(x) = 2^x$$

$$f(x) = 4^x$$

1. (20 pts) Starting with $f(x) = 2^x$, sketch the graph of $g(x) = -3 \cdot 2^{x+5} + 9$ in 4 steps (counting $f(x) = 4^x$ as the first step). Use $x = -1$, $x = 0$, and $x = 1$ to find 3 points in the first graph, and show how these 3 points are moved around by each step in the transformation to $g(x)$. Finding the x - and y -intercepts is a separate problem, so don't worry about them, on this page. Label each sketch as some variation on $f(x)$, for instance, $7 \cdot 2^{x-11} - 4$ would be $7f(x-11) - 4$.