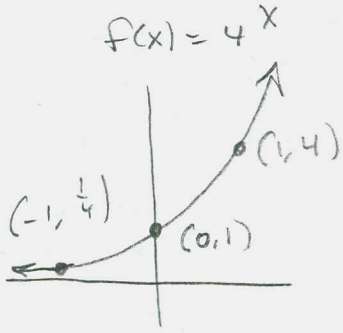
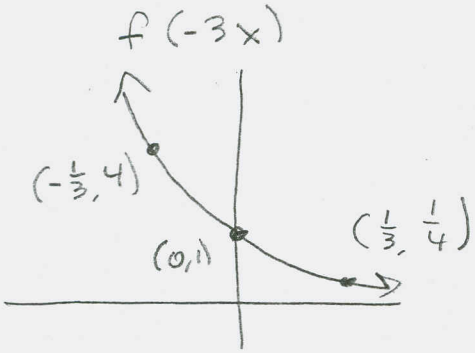
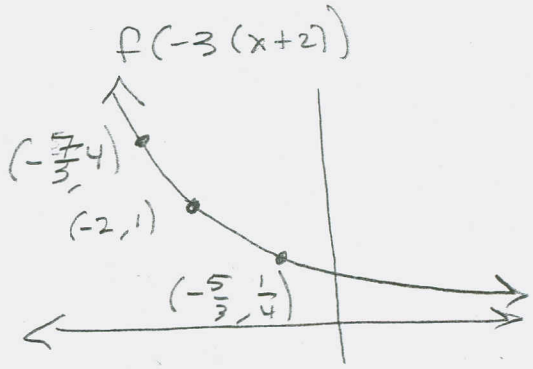
$-3x-6=-3(x+2)$

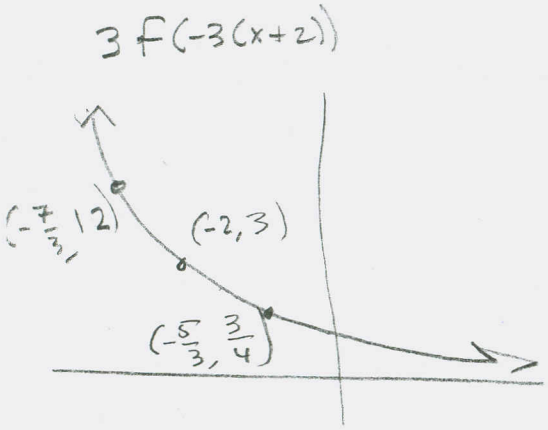
(10 pts bonus) Sketch the graph of $g(x) = 3 \cdot 4^{-3x-6} - 2$ by transforming the basic function $f(x) = 4^x$, as demonstrated on many occasions in lecture.

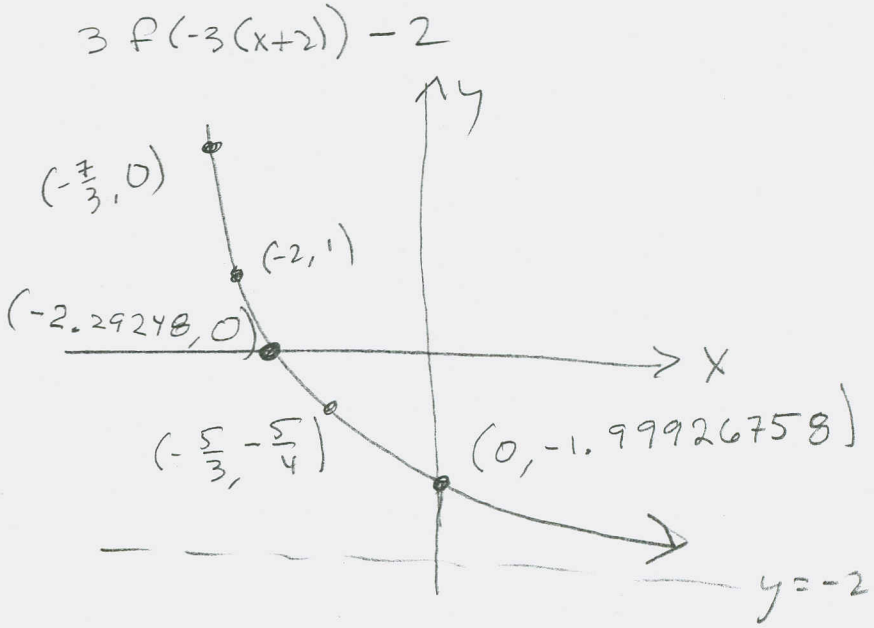
(5 pts bonus) Find the x-intercept, accurate to 5 decimal places in the x-coordinate. Label it clearly on your final sketch.











$3 \cdot 4^{-3x-6} - 2 = 0$

$3 \cdot 4^{-3x-6} = 2$

$4^{-3x-6} = \frac{2}{3}$

$-3x-6 = \log_4\left(\frac{2}{3}\right)$

$-3x = \log_4\left(\frac{2}{3}\right) + 6$

$x = -\log_4\left(\frac{2}{3}\right) - 2$

$= -\frac{\ln(2/3)}{\ln(4)} - 2$

≈ -2.29248125