

**Problem 7.** (10 pts total) Let  $f(x) = (x - 1)^3 + 2$ .

(a) (6 pts) Sketch the graphs of  $f$  and the graph of  $f^{-1}$  and clearly label which graph is which.  
**HINT: The function  $f$  is a transformation of  $g(x) = x^3$ .**

(b) (4 pts) Explicitly find the function  $f^{-1}(x)$ . (That is, find the expression for  $f^{-1}$ ).

**BONUS PROBLEM. (This is for extra credit.)** (6 pts total) Let

$$M(x) = \frac{3 - x}{4}.$$

(a) (3 pts) Suppose  $h \neq 0$ . Find and fully simplify

$$\frac{M(a + h) - M(a)}{h}.$$

(b) (3 pts) Find the average rate of change of the function  $M$  from  $x = 0$  to  $x = 2$ .