Find a function $f$ satisfying

a. $f'(x) = 6x^3 - x^2 + 5$ and

b. $f(1) = 6$.

**Solution:** Antidifferentiate $f'$ to get $f(x) = 6x^4/4 - x^3/3 + 5x + C$, for some constant $C$. Then use the function value given to find $C$. $f(1) = 1.5 - 1/3 + 5 + C = 6$ can be solved to give $C = -1/6$. 