

Let $f(x) = x^3 - 2x$

1. Plot $y = f(x)$
 - (a) What are the roots of f ?
 - (b) Where does f have local maxima? minima?
 - (c) Where is f concave up? concave down?
 - (d) Where does f have inflection points?
2. In each case, explain how the graphs are related to the graph of $y = f(x)$
 - (a) $y = f(x) + a$ with $a = 2$ and $a = -1$
 - (b) $y = f(x + a)$ with $a = 2$ and $a = -1$
 - (c) $y = a f(x)$ with $a = 2$, $a = 0.5$ and $a = -1$
 - (d) $y = f(ax)$ with $a = 2$, $a = 0.5$ and $a = -1$