

Graph each of the following three functions noting all intervals where the function increases, all intervals where the function decreases, all critical numbers, all relative maxima and all relative minima:

1. $f(x) = 2x^3 + 6x^2 + 6x + 3.$

2. $f(x) = \sqrt[3]{x}.$

3. $f(x) = 3x^4 - 4x^3.$