

(1) Analyze the following functions (maxima, minima, etc.).

(a) $f(x) = ax^2 + bx + c$

(b) $f(x) = x^3 - 6x$

(c) $g(t) = t^3 - t^2 + t - 1$

(d) $h(x) = x \ln x$

(e) $h(x) = \sqrt{1 - x^2}$

(f) $f(x) = |x^2 - 2|$ on $[-2, 2]$.

(g) $g(t) = \frac{1}{t}$

(h) $m(x) = 2x + \frac{1}{x}$

(i) $n(x) = \frac{1}{x^2+1}$

(2) Give bounds on $f(1.1)$ if

(a) $f(1) = 2$ and $.1 < f'(x) < .3$ for all x .

(b) $f(1) = 5$ and $|f'(x)| \leq 2$ for all x .

(3) Estimate $y(2.2)$ if $y(3) = 4$ and $y' = \frac{x}{y^2}$.