

Finding Local Maxima/Minima

Directions: Find all local maxima and minima and state where they occur. State all intervals on which each function is increasing and decreasing.

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

2. $f(x) = x^4 - 2x^2 + 8$

3. $f(x) = \frac{x^2 - 2x + 1}{x + 3}$

4. $f(x) = e^x(x^2 - 3x + 1)$

5. $f(x) = \frac{x^2 - 1}{x^2 + 2}$

6. $f(x) = \sin^3 x \cos x$ on $(0, 2\pi)$

7. $f(x) = e^{2x} - e^x$

8. $f(x) = \ln(x^2 - x + 2)$

9. $f(x) = \tan^{-1}(x^2 - 2x)$

10. $f(x) = \sqrt[3]{x^3 - 3x + 2}$