

Name: _____

Extrema on an Interval

1) Find the maximum and minimum values of the following functions on the indicated interval

1. $f(x) = \frac{2}{3}x - x^{\frac{2}{3}}$ $[0, 8]$

2. $f(x) = x^{\frac{2}{5}} - \frac{1}{9}x^{\frac{7}{5}}$ $[-1, 1]$

2) Find the absolute maximum and minimum values of each function on the given interval.

1) $f(x) = x^2 - 1$, $-1 \leq x \leq 2$

2) $f(x) = 2x + 4\cos x$, $[0, \pi]$

3) Find the extreme values of the function and where they occur.

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

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

4) Locate and classify the stationary points of the function

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

5) Determine the minimum value of the function $f(x) = \sqrt{x} + \frac{1}{\sqrt{x}}$