

Finding Absolute Extrema on an Interval

Directions: Find all absolute extrema for each function on the given interval or show that it has none.

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

2. $h(x) = x\sqrt{x} - x$ on $[0, 4]$

3. $g(x) = \frac{x-1}{\sqrt{x}}$ on $[1, 9]$

4. $f(x) = x^3 - 3x^2 + 4$ on $[-1, 4]$

5. $f(x) = x\sqrt{4-x^2}$ on $[-\sqrt{2}, 2]$

6. $g(x) = e^{-x} \sin x$ on $[-\pi, \pi]$

7. $f(x) = x^2\sqrt{8-x^3}$ on $[-2, 2]$

8. $h(x) = \sin x + \cos x$ on $[0, \pi]$

9. $g(x) = -\frac{1}{2}\cos 2x - \cos x$ on $[-\pi, \pi]$

10. $h(x) = x(5-x)^{\frac{2}{3}}$ on $[0, 6]$