Extrema and the First-Derivative Test

1. Find all relative extrema of the function (similar to p.184 #2)

$$f(x) = x^2 + 6x + 5$$

2. Find all relative extrema of the function (similar to p.184 #6)

$$f(x) = \frac{1}{5}x^5 - 16x$$

3. Find all relative extrema of the function (similar to p.184 #??)

$$f(x) = 3x^4 - 20x^3 - 54x^2 + 540x - 12$$

4. Find all relative extrema of the function (similar to p.184 #12)

$$f(x) = 5x - 60x^{\frac{1}{3}}$$

5. Find all relative extrema of the function (similar to p.184 #14)

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

6. Find all relative extrema of the function
(similar to p.184 #16)

$$f(x) = x + \frac{4}{x}$$

7. Use a graphing utility to find graphically all relative extrema of the function
(similar to p.184 #14)

$$f(x) = x^3 - 5x^2 + 6x - 2$$

8. Find the absolute extrema of the function on the closed interval.
(similar to p.184 #22)

$$f(x) = x^2 + 6x - 1, \quad [-5,2]$$

9. Find the absolute extrema of the function on the closed interval.
(similar to p.184 #24)

$$f(x) = x^3 - 27x, \quad [0,5]$$

10. Find the absolute extrema of the function on the closed interval.
(similar to p.184 #28)

$$f(x) = \frac{x^2}{x^2 - 5}, \quad [-2,4]$$

11. Find the absolute extrema of the function on the closed interval.
(similar to p.184 #28)

$$f(x) = (7x - 1)^{\frac{2}{3}}, \quad [-8,4]$$

12. Find the absolute extrema of the function on the interval [0, oo) (similar to p.184 #28)

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