

Due date: _____

Name: _____

1. Find the intervals on which $f(x) = (x - 2)e^x$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

2. Find the intervals on which $f(x) = x^4 + 4x^3 + 4x^2$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

3. Find the intervals on which $f(x) = x^{1/3}(x + 8)$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

4. Find the intervals on which $f(x) = x^{4/3} - x^{1/3}$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

5. Find the intervals on which $f(x) = \frac{x}{4-x^2}$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

6. Find the intervals on which $f(x) = \ln(x^2 + 1)$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

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7. Find the intervals on which $f(x) = e^{-x^2}$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.
8. Find the intervals on which $f(x) = x^3 \ln x$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

9. Find the intervals on which $f(x) = \tan^{-1}(x^2 - 1)$ is increasing or decreasing. Also, find all points where f has a local maximum or local minimum.

Q: What holds water yet is full of holes?

Optional exercises from the Stewart textbook if you'd like more practice:

4.3 (p.300) #9-17 odd (parts a and b), 37-47 (parts a and b)