



Name: \_\_\_\_\_

Date: \_\_\_\_\_

## 3B Exercises

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### Intervals of Increasing and Decreasing

For each problem

- Find the critical numbers,
- Find the intervals of increasing and decreasing,
- Find the relative extrema using the first derivative test.
- Check using your graphing utility

21.  $f(x) = 2x^3 + 3x^2 - 12x$     23.  $f(x) = (x - 1)^2(x + 3)$

29.  $f(x) = (x + 2)^{2/3}$

35.  $f(x) = \frac{x^2}{x^2 - 9}$

**43.**  $f(x) = \frac{x}{2} + \cos x$

**45.**  $f(x) = \sin x + \cos x$