



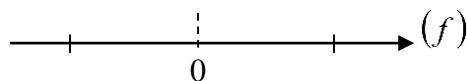
## Examples 7.2 – Graph Analysis Using First and Second Derivatives

Let  $f(x) = \frac{x^2 - 1}{x^3}$ . Find each of the following:

- (a) Domain,  $x$ -intercepts,  $y$ -intercept
- (b) Vertical asymptotes and nearby behavior
- (c) Horizontal asymptotes
- (d) Critical points
- (e) Intervals of increase/decrease, and local extrema
- (f) Intervals of concavity, and inflection
- (g) Sketch, or check with graphing device

**Solution:** (a)

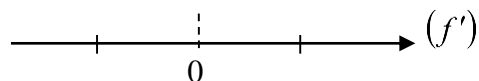
(b)



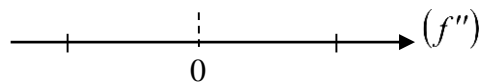
(c)

(d)

(e)



(f)



(g) (Sketch on a separate sheet of paper, then check with a graphing device.)