

**Math 10350 – Curve Sketching Packet 02A**

**1.** Sketch the graph of  $f(x) = x^3 - \frac{3}{2}x^2$  by completing the steps below.

**1a.** Find all  $x$ -intercepts and  $y$ -intercept of the graph of  $f(x)$  whenever possible.

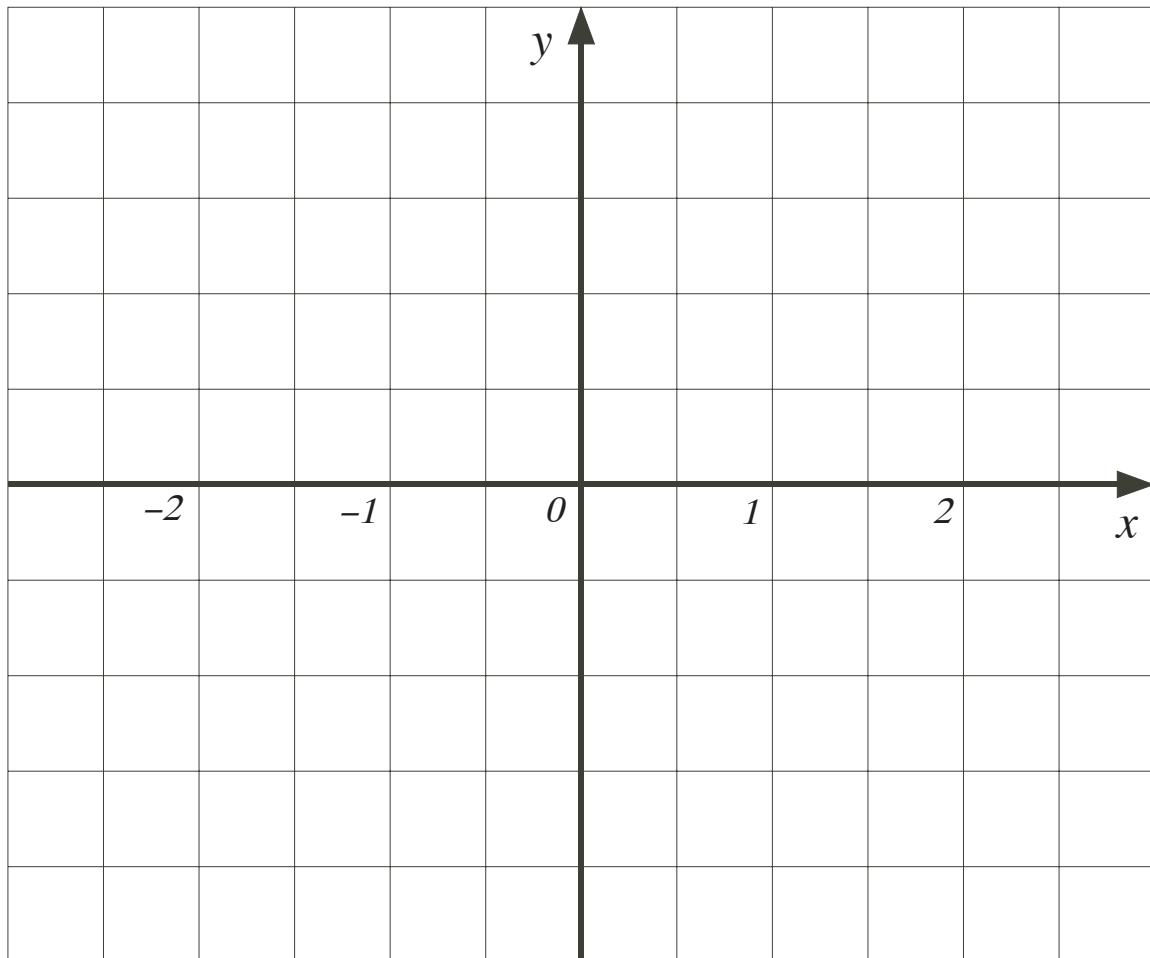
**1b.** Find coordinates of all critical points, vertical asymptotes, and places where  $f(x)$  are undefined.

**1c.** Determine where  $f(x)$  is increasing and where it is decreasing. Give your answer using interval notation.

1d. Determine the concavity and coordinates of inflection points of  $f(x)$ .

1e. Find all asymptotes and limit at infinity whenever applicable. Check for any symmetry.

1f. Sketch the graph below labeling all important features. Your picture should be large and clear.



**Math 10350 – Curve Sketching Packet 02B**

**2.** Sketch the graph of  $g(x) = \frac{x}{x^2 - 1}$  by completing the steps below.

**2a.** Find all  $x$ -intercepts and  $y$ -intercept of the graph of  $g(x)$  whenever possible.

**2b.** Find coordinates of all critical points, vertical asymptotes, and places where  $g(x)$  are undefined.

**2c.** Determine where  $g(x)$  is increasing and where it is decreasing. Give your answer using interval notation.

**2d.** Find  $g''(x)$  completely simplifying your answer. You should cancel out all common factors.

2e. Determine the concavity and coordinates of inflection points of  $g(x)$ .

2f. Find all asymptotes and limit at infinity whenever applicable. Check for any symmetry.

2g. Sketch the graph below labeling all important features. Your picture should be large and clear.

