

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Consider the rational function  $f(x) = \frac{x(x-2)}{(x-1)(x+2)^2}$ .

(a) Find the domain  $\text{Dom}(f)$ .

(b) Find the vertical asymptotes.

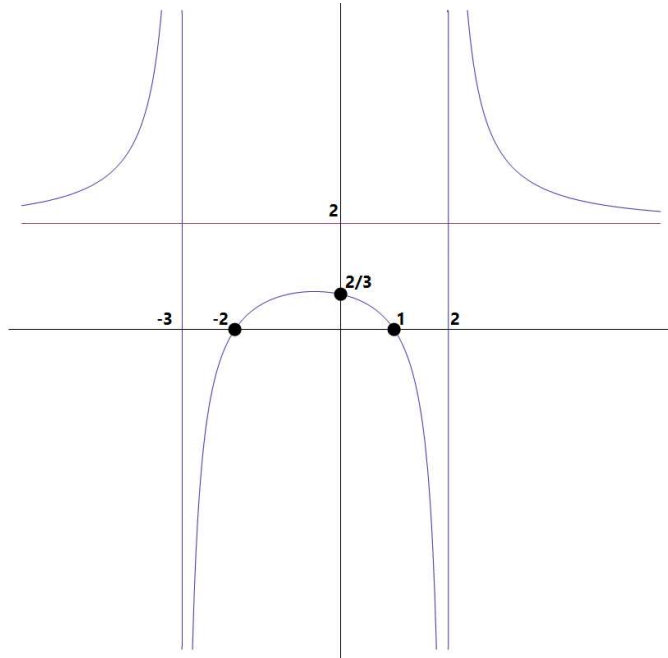
(c) Find the horizontal asymptote.

(d) Find the  $x$ -intercepts.

(e) Find the  $y$ -intercept.

(f) Sketch the graph of  $y = f(x)$  **showing clearly and labeling all features collected in Parts (a)-(e)** (please, make a nice graph for me to enjoy).

2. [6 points] Consider the graph shown below.



(a) Find the domain  $\text{Dom}(f)$ .

(b) Find the vertical asymptotes.

(c) Find the horizontal asymptote.

(d) Find the  $x$ -intercepts.

(e) Find the  $y$ -intercept.

(f) Find a possible formula for the function  $y = f(x)$  depicted in the graph.