

Name:**Tutorial time:**

1. Sketch the graph of $f(x) = \frac{x}{x^2 - 2x + 1}$. Your solution should include the following:

- The domain of f , and all intercepts and asymptotes.
- The critical points of f , including the location of any local maxima or minima.
- The intervals on which f is increasing or decreasing.
- The inflection points of f , and the intervals on which f is concave up or concave down.

- At noon, ship A ('The Valiant') is 100 km west of ship B ('Excelsior'). Ship A is sailing south at 35 km/h, and ship B is steaming north at 25 km/h. How fast is the distance between the ships changing at 4:00 pm?
- A box with no top is to be formed from a rectangular piece of cardboard of size 8 cm x 15 cm by cutting out a square from each corner, and then folding up the sides. What size should the squares be if the volume of the box is to be as large as possible?