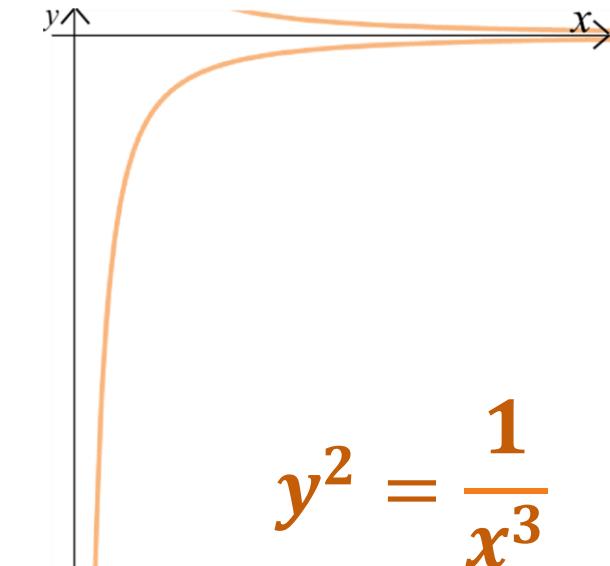# Brimful

The y-axis is an asymptote for the following curves:

$$y = -\frac{1}{x}$$

$$y = -\frac{1}{x^2}$$

$$y = \ln x - 1$$

$$y^2 = \frac{1}{x^3}$$
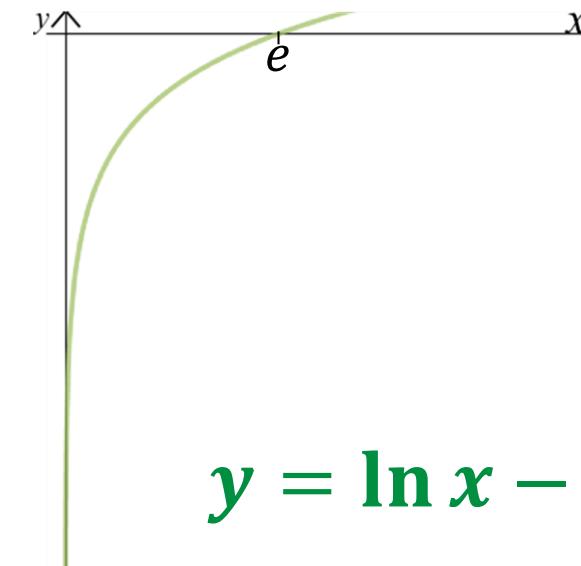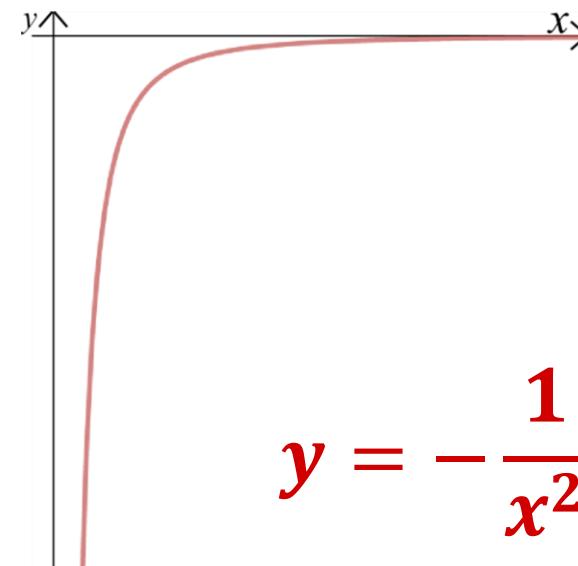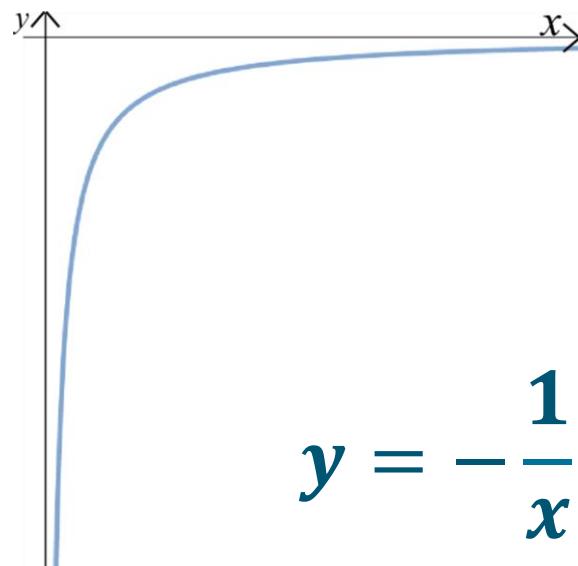
Imagine rotating the $x > 0, y < -1$ regions of these curves about the y-axis to form a set of vessels.

Which vessels are of finite volume?

Thousands more problems can be found on the NRICH maths website:

http://nrich.maths.org