

(6.1) Area between Two Curves

Full Name: _____

1. Sketch the region enclosed by the graphs of the given equations. Then, use a definite integral to find the exact value of the area of the region.

(a) $y = \frac{1}{x}$, $y = 0$, $x = 1$, $x = e$

(b) $y = \sin x$, $y = 0$, $x = \frac{\pi}{6}$, $x = \frac{\pi}{2}$

(c) $y = \frac{1}{1+x^2}$, $y = 0$, $x = \frac{\sqrt{3}}{3}$, $x = 1$

(d) $x = e^y$, $x = 0$, $y = 1$, $y = \ln 2$

(e) $y = \sqrt{x}$, $y = x^2$

(f) $y = x^2$, $y = 4x$

(g) $y = x^3$, $y = 9x$

(h) $x = y^2$, $x = 4$