

**Exercise 1.** Find the volume of the solid obtained by rotating the area between  $y = 3 \arcsin x^2$ ,  $y = 0$ , and  $x = 1$  around the  $y$ -axis.

*With these kinds of problems, it's always best to have a picture to reference. Try sketching it out!*

**Exercise 2.** Find the volume of the solid obtained by rotating the area between  $y = x^2 - 2$  and  $y = x - 2$  around the  $x$ -axis.

*With these kinds of problems, it's always best to have a picture to reference. Try sketching it out!*

**Exercise 3.** Evaluate the following integrals:

(a)  $\int x^3 \ln x dx$

(b)  $\int x e^{-x} dx$

(c)  $\int e^x \cos x dx$