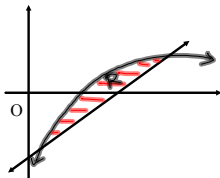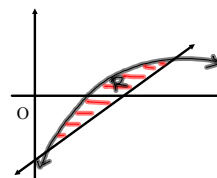1)  Let *R* be the shaded region bounded
    by the graph of $y = \ln x$ and the line
    $y = x - 2$, as shown.

   a)  Find the area of R.     **1.949 units$^2$**

---

1)  Let *R* be the shaded region bounded
    by the graph of $y = \ln x$ and the line
    $y = x - 2$, as shown.

   b)  Find the volume of the solid generated
       when *R* is rotated about the horizontal
       line $y = -3$     **34.199 units$^3$**

---

1)  Let *R* be the shaded region bounded
    by the graph of $y = \ln x$ and the line
    $y = x - 2$, as shown.

   c)  Write, but do not evaluate, an integral
       expression that can be used to find the
       volume of the solid generated when *R*
       is rotated about the y-axis.
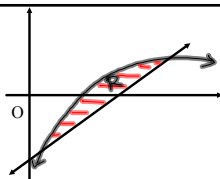
   **shell**

   $$2\pi \int_{0.159}^{3.146} x\big(\ln x - (x\text{-}2)\big)\, dx$$

   **disk**

   $$\pi \int_{-1.841}^{1.146} \left[(y + 2)^2 - e^{2y}\right] dy$$