1. The region bounded by the graphs of $y = x^2$ and $y = 2x$, the shaded region in the figure, is revolved around the $x$-axis. Express the volume of the resulting solid as an integral using the Disk Method and the Shell Method. Do not evaluate either integral.

(a) $V_{\text{Disk}} = \int \pi (2x - x^2)^2 \, dx$

(b) $V_{\text{Shell}} = \int 2\pi x (2x - x^2) \, dx$

2. The region in the first quadrant bounded by the graphs of $y = x^2$ and $y = x + 2$, the shaded region in the figure, is revolved around the line $x = 3$. Express the volume of the resulting solid as an integral using the Disk Method and the Shell Method. Do not evaluate either integral.

(a) $V_{\text{Disk}} = \int \pi ((x + 2) - x^2)^2 \, dx$

(b) $V_{\text{Shell}} = \int 2\pi (x + 2) ((x + 2) - x^2) \, dx$