



$$V = \int_{-r}^{r} \pi \left[ \sqrt{r^2 - x^2} \right]^2 dx \rightarrow \int_{-r}^{r} \pi (r^2 - x^2) dx = \pi \int_{-r}^{r} r^2 - x^2 dx = \pi \left[ r^2 x - \frac{x^3}{3} \right]_{-}^{r} = \pi \left[ r^2 \cdot r - \frac{r^3}{3} \right] - (r^2 (-r) - \frac{-r^3}{3}) = \pi \left[ r^2 \cdot r - \frac{r^3}{3} \right]_{-r}^{r} = \pi \left[ r^2 \cdot r - \frac{r$$

$$=\ldots=\frac{4\pi r^3}{2}$$