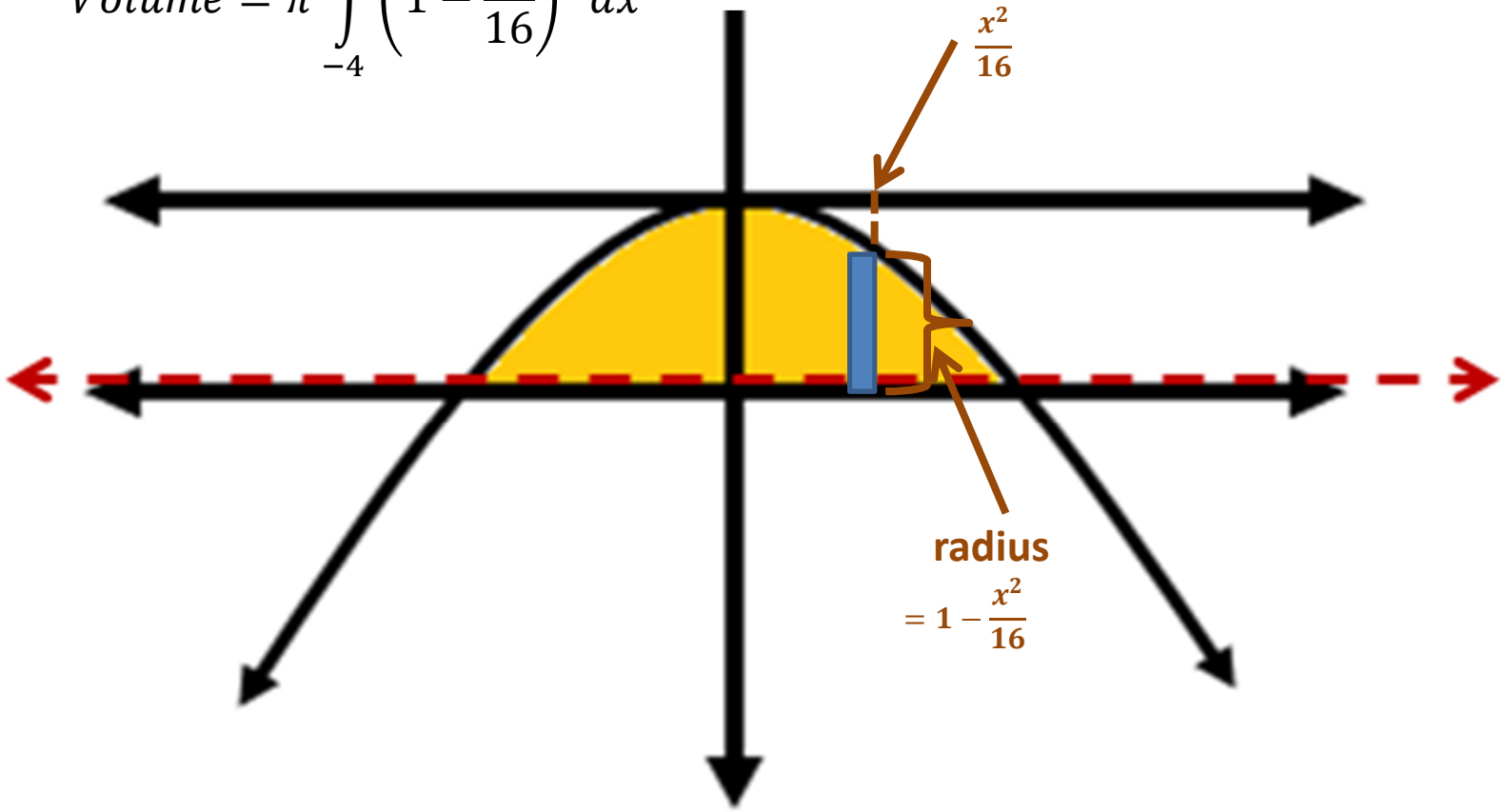
Find the volume of the solid generated by revolving the region bounded by the parabola $y = -\frac{x^2}{16}$ and the line $y = -1$ about the following lines.

a. The line $y = -1$

Disk Method

$$Volume = \pi \int_{-4}^{4} \left(1 - \frac{x^2}{16}\right)^2 dx$$

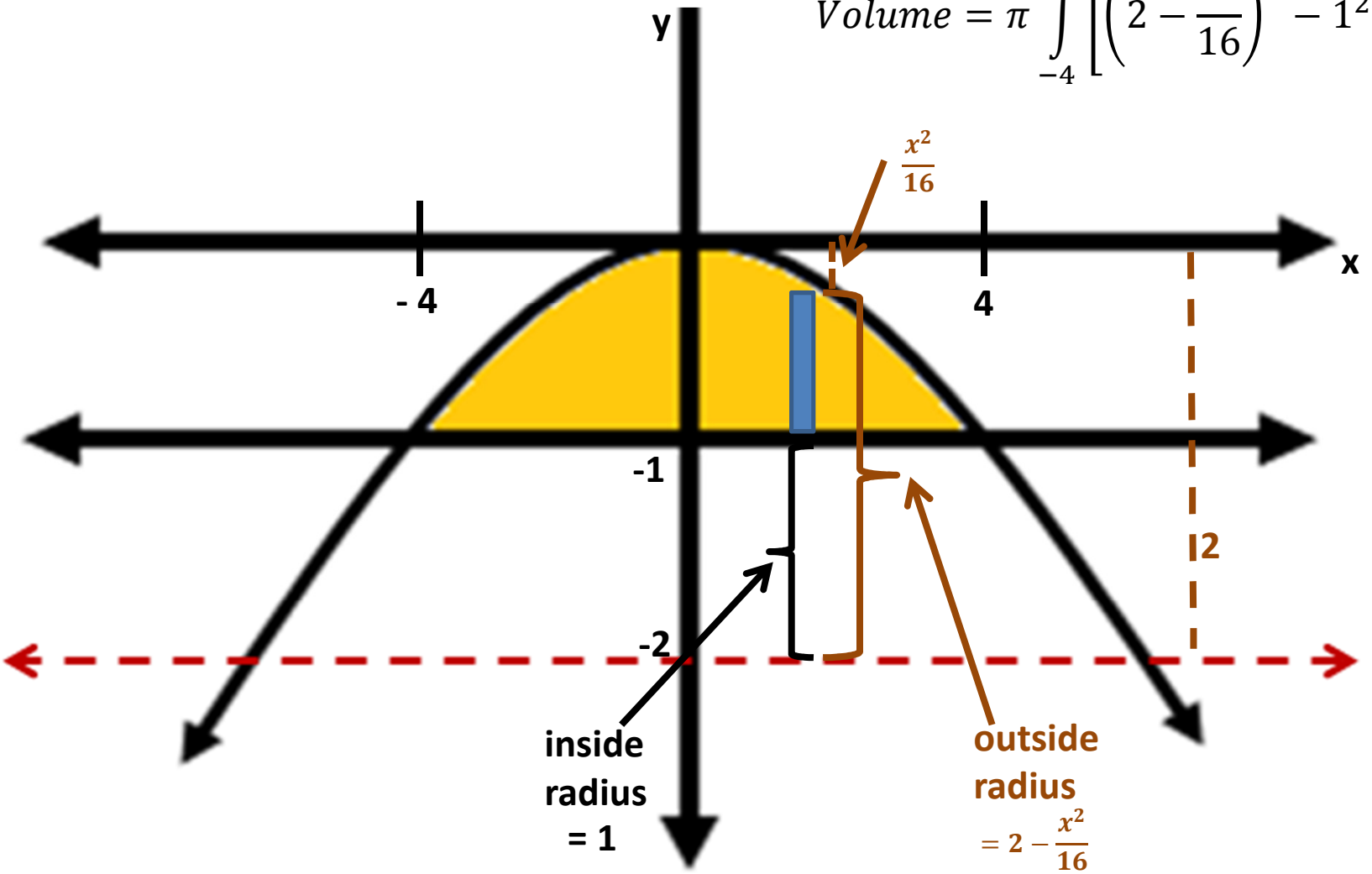


Find the volume of the solid generated by revolving the region bounded by the parabola $y = -\frac{x^2}{16}$ and the line $y = -1$ about the following lines.

b. The line $y = -2$

Washer Method

$$Volume = \pi \int_{-4}^{4} \left[\left(2 - \frac{x^2}{16} \right)^2 - 1^2 \right] dx$$



Find the volume of the solid generated by revolving the region bounded by the parabola $y = -\frac{x^2}{16}$ and the line $y = -1$ about the following lines.

c. The line $y = 1$

Washer Method

$$Volume = \pi \int_{-4}^{4} \left[2^2 - \left(1 + \frac{x^2}{16} \right)^2 \right] dx$$