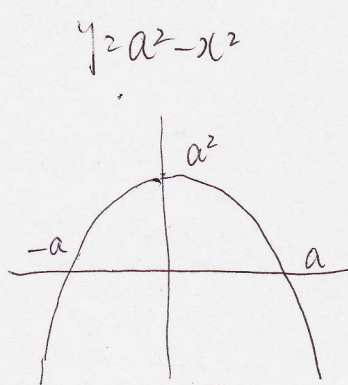


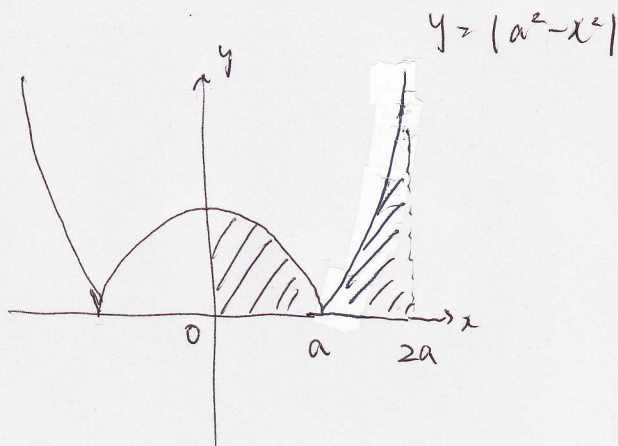


$a > 0$ のとき $\int_0^{2a} |a^2 - x^2| dx$ の値を求めよ。

[愛工大]



xy



$$\int_0^{2a} |a^2 - x^2| = \int_0^a a^2 - x^2 dx + \int_a^{2a} x^2 - a^2 dx$$

$$= \left[a^2x - \frac{1}{3}x^3 \right]_0^a + \left[\frac{1}{3}x^3 - a^2x \right]_a^{2a}$$

$$= a^3 - \frac{1}{3}a^3 + \left\{ \left(\frac{8}{3}a^3 - 2a^3 \right) - \left(\frac{1}{3}a^3 - a^3 \right) \right\}$$

$$= 2a^3$$

$$\frac{2a^3}{a}$$

