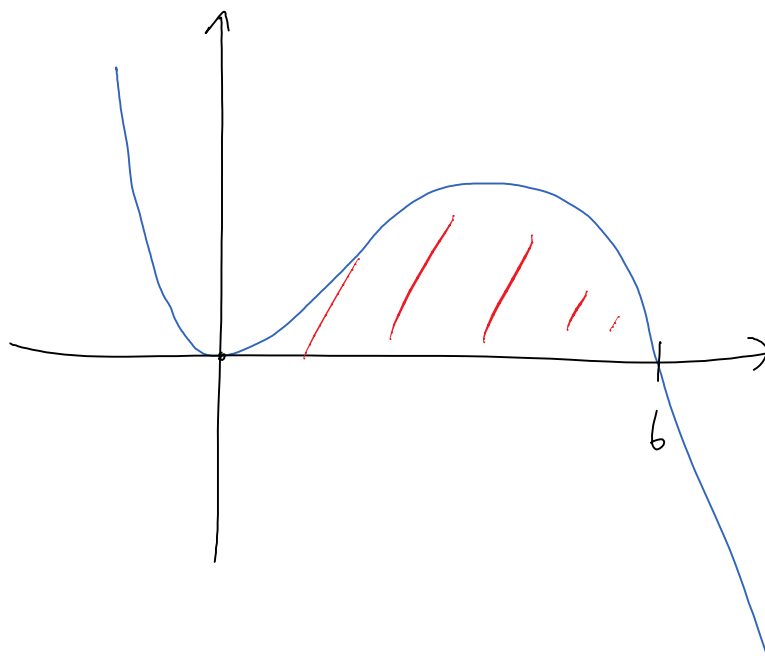


$$y = ax^2(6-x), a > 0$$

Kurvskiss

Bestäm a så att

$$\begin{aligned} & \int_0^6 ax^2(6-x) dx = 18 \\ & = \int_0^6 (6ax^2 - ax^3) dx = \left[2ax^3 - \frac{ax^4}{4} \right]_0^6 = \\ & = 2 \cdot 6^3 \cdot a - \frac{a \cdot 6^4}{4} = 6^3 \cdot a \left(2 - \frac{6}{4} \right) = 108a \end{aligned}$$

$$108a = 18 \quad \Leftrightarrow \quad a = \frac{18}{108} = \frac{9}{54} = \frac{3}{6} = \frac{1}{2}$$