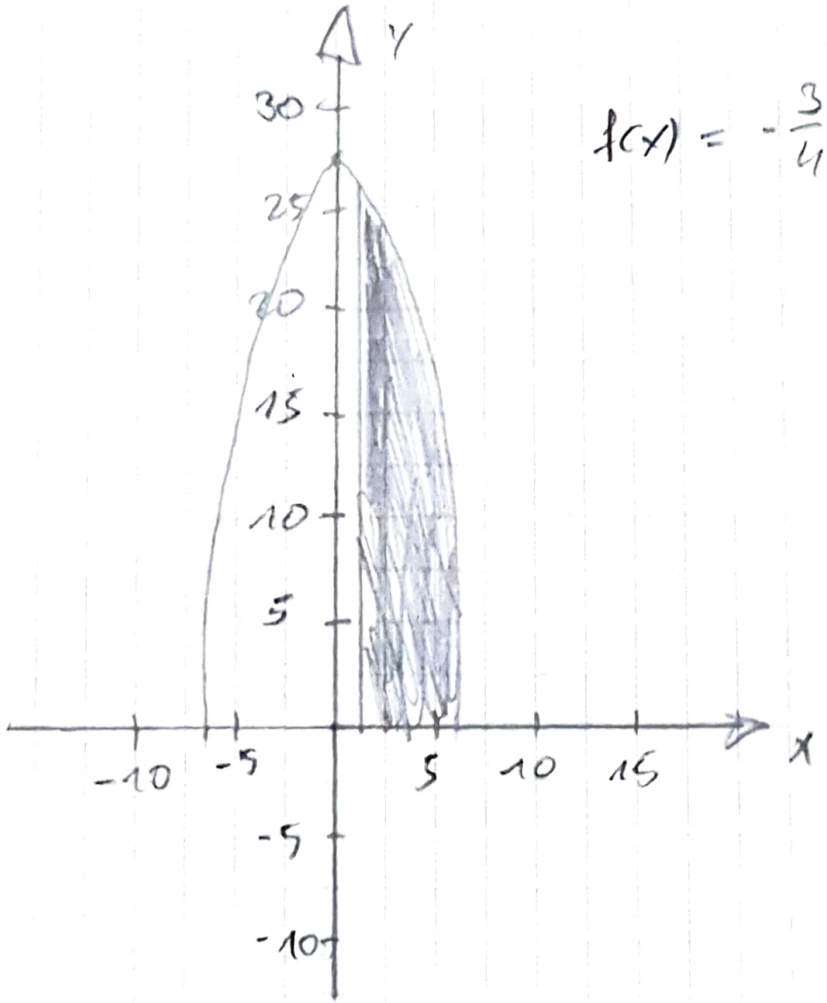
d) $\int_1^5 -\frac{3}{4}x^2 + 27\,dx = \left[-\frac{3}{12}x^3 + 27x\right]_1^5$

$A_0 = \frac{1}{4}\cdot 5^3 + 27\cdot 5 - \frac{1}{4}\cdot 1^3 + 27\cdot 1$

$= 139$



$f(x) = -\frac{3}{4}x^2 + 27$