

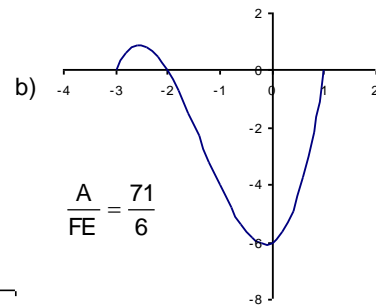
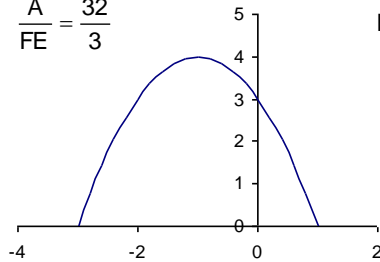
Integralrechnung (Lösungen)

1. a) $x^4 - \frac{2}{3}x^3 + 4x + c$ b) $\frac{b}{3}x^3 - \frac{a}{2}x^2 + kx + c$ c) $-\left(4x - \frac{1}{4}x^2 + e^x\right) + c$
 d) $-\frac{2}{3}x^{-3} + 3\ln|x| - \frac{5}{2}x^2 + c$ e) $\frac{x^3}{3a} - \frac{a}{x} + c$ f) $\frac{1}{5}\left(\frac{x^2}{4} - \ln|x|\right) + c$
 g) $2x - \tan x + c$ h) $\sin x - (n-1)\tan x + c$ i) $\frac{x}{t} - \ln|x| - 9x^{-\frac{1}{3}} + c$
 j) $x^3 - 8x - 12\ln|x| + 6x^{-1} + \frac{1}{2x^2} + c$

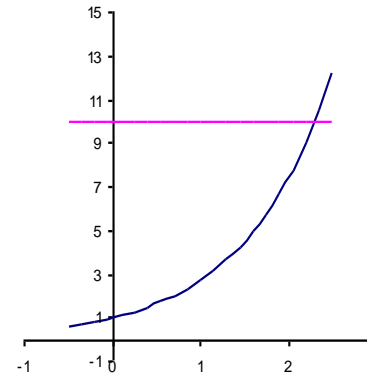
2. a) 2 b) $\frac{10}{3}$ c) $\frac{3}{2}$ d) $\frac{1}{2}(\sqrt{2}-1) = 0,207$ e) $5 - e = 2,282$ f) $\ln 4$

3. a) $\frac{4}{11}$ b) $\sin x + \frac{x}{2} + c$ c) $\frac{1}{5}e^5(e^{10}-1)$ d) $\frac{1}{2}$ e) $\frac{1}{7}$ f) $-2 \cdot (1 - e^3)$

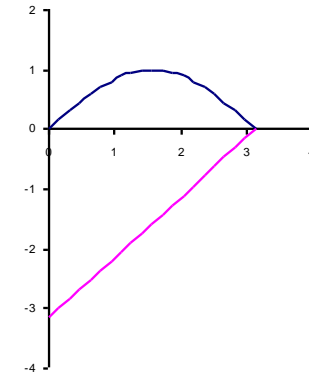
4. a) $\frac{A}{FE} = \frac{32}{3}$



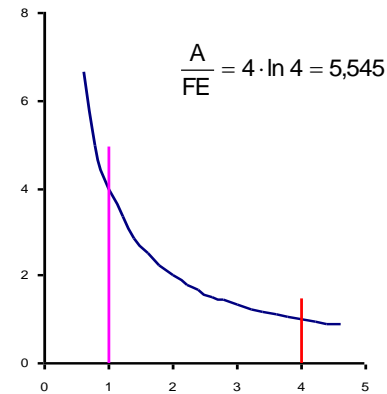
c) $\frac{A}{FE} = 10 \cdot (\ln 10 - 1) + 1 = 14,026$



d) $\frac{A}{FE} = 6,935$



e)



5. $\frac{A}{FE} = \ln 10$, $a = \sqrt[3]{10}$, $b = \sqrt[3]{10^2}$

6. $\frac{A}{FE} = \int_0^3 (x - 1 - (e^{-x} - 2)) dx = 6,55$