

S 97 Nr. 1

a) $f(x) = x^2$; $F(x) = \frac{x^3}{3}$

b) $f(x) = x^3$; $F(x) = \frac{x^4}{4}$

c) $f(x) = 3x$; $F(x) = \frac{3}{2}x^2$

d) $f(x) = x^5$; $F(x) = \frac{x^6}{6}$

e) $f(x) = 5x^2$; $F(x) = \frac{5}{3}x^3$

f) $f(x) = x^4$; $F(x) = \frac{x^5}{5}$

g) $f(x) = 0,1x^3$; $F(x) = \frac{0,1}{4}x^4$

h) $f(x) = x$; $F(x) = \frac{x^2}{2}$

i) $f(x) = 2$; $F(x) = 2x$

j) $f(x) = 2x^5$; $F(x) = \frac{2}{6}x^6 = \frac{1}{3}x^6$

S 97 Nr. 2

a) $f(x) = 3x^2$; $F(x) = x^a \Rightarrow a = 3$

b) $f(x) = 2x$; $F(x) = x^2 - a \Rightarrow$ Für alle $a \in \mathbb{R}$ wahr

c) $f(x) = 2x$; $F(x) = x^2 + 1 + a \Rightarrow$ Für alle $a \in \mathbb{R}$ wahr

d) $f(x) = (a+1) \cdot x$; $F(x) = x^{a+1} \Rightarrow (a+1) - 1 = 1 \Rightarrow a = 1$

S 97 Nr. 3

a.) $f(x) = 2x$; $F(x) = \frac{2}{2}x^2 + C \Rightarrow F(1) = 100 = 1^2 + C \Rightarrow C = 99$

$\Rightarrow \underline{\underline{F(x) = x^2 + 99}}$

b) $f(x) = x^2$; $F(x) = \frac{x^3}{3} + C \Rightarrow F(1) = 100 = \frac{1^3}{3} + C \Rightarrow C = 99\frac{2}{3}$

$\Rightarrow \underline{\underline{F(x) = \frac{x^3}{3} + 99\frac{2}{3}}}$

c) $f(x) = 5$; $F(x) = 5 \cdot x + C \Rightarrow F(1) = 100 = 5 \cdot 1 + C \Rightarrow C = 95$

$\underline{\underline{F(x) = 5x + 95}}$