Aufgabenblatt
zu unbestimmten Integralen

Integralrechnung

Lösungen
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Level 2 – Fortgeschritten – Blatt 1

Lösung A1

$f_1(x) = 0{,}5$	$F_1(x) = 0{,}5x$
$f_2(x) = 0{,}5x$	$F_2(x) = 0{,}25x^2$
$f_3(x) = 0{,}5x^2$	$F_3(x) = \dfrac{1}{6}x^3$
$f_4(x) = -cx^3$	$F_4(x) = -\dfrac{c}{4}x^4$
$f_5(x) = yx^4$	$F_5(x) = \dfrac{y}{5}x^5$
$f_6(t) = t^2 + 1$	$F_6(t) = \dfrac{1}{3}t^3 + t$
$f_7(t) = 0{,}5t^2 + q$	$F_7(t) = \dfrac{1}{6}t^3 + qt$

Lösung A2

$f_1(x) = \dfrac{1}{x^2}$	$F_1(x) = -\dfrac{1}{x}$
$f_2(x) = \dfrac{1}{4x^2}$	$F_2(x) = -\dfrac{1}{4x}$
$f_3(x) = \dfrac{5}{x^3}$	$F_3(x) = -\dfrac{5}{2x^2}$
$f_4(x) = \dfrac{a}{x^4} + 7$	$F_4(x) = -\dfrac{a}{3x^3} + 7x$
$f_5(x) = b^{-1}x^{-5} + 6$	$F_5(x) = -\dfrac{b^{-1}}{4}x^{-4} + 6x$
$f_6(t) = \dfrac{e^2}{t^2}$	$F_6(t) = -\dfrac{e^2}{t}$
$f_7(t) = \dfrac{25x}{t^4}$	$F_7(t) = -\dfrac{25x}{3t^3}$

Lösung A3

$f_1(x) = x^{\frac{1}{2}} + 6$	$F_1(x) = \dfrac{2}{3}\sqrt{x^3} + 6x + C$
$f_2(x) = \dfrac{0{,}5}{x^2} - 9$	$F_2(x) = -\dfrac{0{,}5}{x} - 9x + C$
$f_3(x) = \dfrac{b}{x^4} + p \cdot q$	$F_3(x) = -\dfrac{b}{3x^3} - p \cdot q \cdot x + C$
$f_4(x) = ax^{-5} + 18$	$F_4(x) = -\dfrac{a}{4}x^{-4} + 18x + C$
$f_5(x) = bx^{-6} - 17$	$F_5(x) = -\dfrac{b}{5}x^{-5} - 17x + C$
$f_6(t) = e^2 t^{-2} + 2{,}5$	$F_6(t) = -e^2 t^{-1} + 2{,}5t + C$
$f_7(t) = 25xt^{-3} + \dfrac{1}{2}$	$F_7(t) = -12{,}5xt^{-2} + \dfrac{1}{2}t + C$