

Aufgabe A1

Bilde eine Stammfunktion mit Hilfe der entsprechenden Integrationsregel.



$f_1(x) = x^2 + x$	$F_1(x) =$
$f_2(x) = 2x^2 - x + 5$	$F_2(x) =$
$f_3(x) = x^3 + x^2 + x + 1$	$F_3(x) =$
$f_4(x) = -5x^4 + 3x^2$	$F_4(x) =$
$f_5(x) = 2x^2 - 3x^3 + 4x^4$	$F_5(x) =$
$f_6(t) = \frac{1}{4}t^4 + \frac{1}{3}t^3 + \frac{1}{2}t^2$	$F_6(t) =$
$f_7(t) = 2,5t^5 + \frac{1}{t^2}$	$F_7(t) =$

Aufgabe A2

Bilde eine Stammfunktion mit Hilfe der entsprechenden Integrationsregel.

$f_1(x) = x^4 + x^8$	$F_1(x) =$
$f_2(x) = x^{12} + x^{-3}$	$F_2(x) =$
$f_3(x) = \frac{1}{x^2} + x^4$	$F_3(x) =$
$f_4(x) = \sqrt{x} - \frac{1}{x^2}$	$F_4(x) =$
$f_5(x) = \frac{1}{x^3} + x - 5$	$F_5(x) =$
$f_6(t) = \frac{2}{5}t^{-4} + 1$	$F_6(t) =$
$f_7(t) = \sqrt{t} - t$	$F_7(t) =$

Aufgabe A3

Bilde alle Stammfunktionen mit Hilfe der entsprechenden Integrationsregel.

$f_1(x) = \frac{2}{x^{-2}} + x^2$	$F_1(x) =$
$f_2(x) = -\frac{3}{4}x^8 + 2,5x^4 - 2x + 4$	$F_2(x) =$
$f_3(x) = \frac{2}{9}x^3 + \frac{5}{8}x^2 + 0,4x - 1,6$	$F_3(x) =$
$f_4(x) = 3 \cdot \frac{1}{x^2} + 2x^{-3} - 5 + x^6$	$F_4(x) =$
$f_5(x) = 4\sqrt{x} + \frac{1}{x^2} - \frac{1}{20}x^{-3} - \frac{1}{10x^{10}}$	$F_5(x) =$
$f_6(t) = \frac{1}{2t^2} + 4\sqrt{t} - t + 1$	$F_6(t) =$
$f_7(t) = \sqrt{20} \cdot t + \frac{1}{20t^3} + (20t)^2 - 20t$	$F_7(t) =$

Lösung A1

$f_1(x) = x^2 + x$	$F_1(x) = \frac{1}{3}x^3 + \frac{1}{2}x^2$
$f_2(x) = 2x^2 - x + 5$	$F_2(x) = \frac{2}{3}x^3 - \frac{1}{2}x^2 + 5x$
$f_3(x) = x^3 + x^2 + x + 1$	$F_3(x) = \frac{1}{4}x^4 + \frac{1}{3}x^3 + \frac{1}{2}x^2 + x$
$f_4(x) = -5x^4 + 3x^2$	$F_4(x) = -x^5 + x^3$
$f_5(x) = 2x^2 - 3x^3 + 4x^4$	$F_5(x) = \frac{2}{3}x^3 - \frac{3}{4}x^4 + \frac{4}{5}x^5$
$f_6(t) = \frac{1}{4}t^4 + \frac{1}{3}t^3 + \frac{1}{2}t^2$	$F_6(t) = \frac{1}{20}t^5 + \frac{1}{12}t^4 + \frac{1}{6}t^3$
$f_7(t) = 2,5t^5 + \frac{1}{t^2}$	$F_7(t) = \frac{5}{12}t^6 - \frac{1}{t}$

Lösung A2

$f_1(x) = x^4 + x^8$	$F_1(x) = \frac{1}{5}x^5 + \frac{1}{9}x^9$
$f_2(x) = x^{12} + x^{-3}$	$F_2(x) = \frac{1}{13}x^{13} - \frac{1}{2}x^{-2}$
$f_3(x) = \frac{1}{x^2} + x^4$	$F_3(x) = -\frac{1}{x} + \frac{1}{5}x^5$
$f_4(x) = \sqrt{x} - \frac{1}{x^2}$	$F_4(x) = \frac{2}{3}\sqrt{x^3} + \frac{1}{x}$
$f_5(x) = \frac{1}{x^3} + x - 5$	$F_5(x) = -\frac{1}{2x^2} + \frac{1}{2}x^2 - 5x$
$f_6(t) = \frac{2}{5}t^{-4} + 1$	$F_6(t) = -\frac{2}{15}t^{-3} + t$
$f_7(t) = \sqrt{t} - t$	$F_7(t) = \frac{2}{3}\sqrt{t^3} - \frac{1}{2}t^2$

Lösung A3

$f_1(x) = \frac{2}{x-2} + x^2$	$F_1(x) = x^3 + C$
$f_2(x) = -\frac{3}{4}x^8 + 2,5x^4 - 2x + 4$	$F_2(x) = -\frac{1}{12}x^9 + 0,5x^5 - x^2 + 4x + C$
$f_3(x) = \frac{2}{9}x^3 + \frac{5}{8}x^2 + 0,4x - 1,6$	$F_3(x) = \frac{1}{18}x^4 + \frac{5}{24}x^3 + 0,2x^2 - 1,6x + C$
$f_4(x) = 3 \cdot \frac{1}{x^2} + 2x^{-3} - 5 + x^6$	$F_4(x) = -\frac{3}{x} - x^{-2} - 5x + \frac{1}{7}x^6 + C$
$f_5(x) = 4\sqrt{x} + \frac{1}{x^2} - \frac{1}{20}x^{-3} - \frac{1}{10x^{10}}$	$F_5(x) = \frac{8}{3}\sqrt{x^3} - \frac{1}{x} + \frac{1}{40}x^{-2} + \frac{1}{90x^9} + C$
$f_6(t) = \frac{1}{2t^2} + 4\sqrt{t} - t + 1$	$F_6(t) = -\frac{1}{2t} + \frac{8}{3}\sqrt{t^3} - \frac{1}{2}t^2 + t + C$
$f_7(t) = \sqrt{20} \cdot t + \frac{1}{20t^3} + (20t)^2 - 20t$	$F_7(t) = \sqrt{5}t^2 - \frac{1}{40t^2} + \frac{400}{3}t^3 - 10t^2 + C$