## Integraltabelle für rationale- , exponential- und Logarithmusfunktionen

<table>
<thead>
<tr>
<th>Einige unbestimmte Integrale</th>
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</thead>
<tbody>
<tr>
<td>1. $\int x^n , dx = \frac{1}{n+1} x^{n+1} + C \quad n \in \mathbb{R} \setminus {-1}$</td>
<td>2. $\int \frac{1}{x} , dx = \ln</td>
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<td>3. $\int e^x , dx = e^x + C$</td>
<td>4. $\int a^x , dx = \frac{a^x}{\ln(a)} + C \quad a &gt; 0 ; a \neq 1$</td>
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<td>5. $\int (ax+b)^n , dx = \frac{(ax+b)^{n+1}}{a(n+1)} + C \quad n \neq -1$</td>
<td>6. $\int \frac{1}{ax+b} , dx = \frac{1}{a} \ln</td>
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<td>7. $\int x(ax+b)^n , dx = \frac{a(n+1)x-b}{a^2(n+1)(n+2)}(ax+b)^{n+1} + C \quad n \neq -1; -2$</td>
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<tr>
<td>8. $\int \frac{x}{ax+b} , dx = \frac{1}{a} x - \frac{b}{a^2} \ln</td>
<td>ax+b</td>
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<tr>
<td>10. $\int \frac{1}{x^2(ax+b)} , dx = -\frac{1}{bx} + \frac{a}{b^2} \ln</td>
<td>ax+b</td>
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<tr>
<td>12. $\int x \cdot e^{ax} , dx = \frac{1}{a^2} (ax-1)e^{ax} + C$</td>
<td>13. $\int x^2 \cdot e^{ax} , dx = \left(\frac{x^2}{a} - \frac{2x}{a^2} + \frac{2}{a^3}\right) e^{ax} + C$</td>
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<tr>
<td>14. $\int \ln(x) , dx = x \cdot \ln(x) - x + C \quad x &gt; 0$</td>
<td>15. $\int [\ln(x)]^2 , dx = x \cdot [\ln(x)]^2 - 2x \cdot \ln(x) + 2x + C \quad x &gt; 0$</td>
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<tr>
<td>16. $\int x^n \ln(x) , dx = x^{n+1} \left(\ln(x) + \frac{1}{n+1}\right) + C \quad x &gt; 0; n \neq -1$</td>
<td>17. $\int [\ln(x)]^n , dx = \frac{[\ln(x)]^{n+1}}{n+1} + C \quad x &gt; 0; n \neq -1$</td>
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<td>18. $\int \frac{1}{x \cdot \ln(x)} , dx = \ln</td>
<td>\ln(x)</td>
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<tbody>
<tr>
<td>1. $\int_0^1 \frac{1}{\sqrt{1-x^2}} , dx = \frac{\pi}{2}$</td>
<td>2. $\int_0^\infty \frac{1}{(1+x)^2} , dx = \pi$</td>
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<tr>
<td>3. $\int_a^b \frac{1}{\sqrt{(x-a)(b-x)}} , dx = \pi$</td>
<td>4. $\int_0^a \frac{1}{\sqrt{a^2-x^2}} , dx = \frac{\pi}{2}$</td>
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<tr>
<td>5. $\int_0^\infty \frac{1}{a^2+x^2} , dx = \frac{\pi}{2a}$</td>
<td>6. $\int_0^\infty e^{-x^2} , dx = \frac{1}{2}\sqrt{\pi}$</td>
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<tr>
<td>7. $\int_0^\infty \frac{x}{\sqrt{1-x^2}} , dx = 1$</td>
<td>8. $\int_0^a \frac{x^2}{\sqrt{ax-x^2}} , dx = \frac{3}{8} a^2 \pi$</td>
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<tr>
<td>9. $\int_0^\infty \frac{1}{(1-x)\sqrt{x}} , dx = 0$</td>
<td>10. $\int_0^{2b} \sqrt{2bx-x^2} , dx = \frac{b^2 \pi}{2}$</td>
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<tr>
<td>11. $\int_{-1}^{a^x} \frac{a^x-1}{a \cdot \ln(a)} , dx = \frac{1}{2} \ln</td>
<td>a</td>
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<tr>
<td>13. &amp; \int_{0}^{\infty} e^{-x^2} , dx = \frac{1}{2} \sqrt{\pi} &amp; 14. &amp; \int_{0}^{\infty} \frac{x}{e^x + 1} , dx = \frac{\pi^2}{12}</td>
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<tr>
<td>15. &amp; \int_{0}^{\infty} x^2 , dx = \frac{\pi^2}{6} &amp; 16. &amp; \int_{0}^{\infty} \ln(x) , dx = -\frac{\pi^2}{12}</td>
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<tr>
<td>17. &amp; \frac{1}{2} \int_{0}^{\infty} \ln(x) , dx = \frac{\pi^2}{6} &amp; 18. &amp; \frac{1}{2} \int_{0}^{\frac{1}{2}} \ln(x + 1) , dx = \frac{\pi}{8} \ln(2)</td>
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<tr>
<td>19. &amp; \frac{1}{2} \int_{0}^{\frac{1}{2}} \ln(x^2 - 1) , dx = \frac{\pi^2}{8} &amp;</td>
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