

$$\int_{dx} R(x: \sqrt{x^2 + 2bx + c}) = \int_{dt} R\left(\frac{t^2 - c}{2(t+b)} : t - \frac{t^2 - c}{2(t+b)}\right) \frac{t^2 + 2bt + c}{2(t+b)^2} \text{ rat}$$

$$t = x + \sqrt{x^2 + 2bx + c} \Rightarrow \begin{cases} x = \frac{t^2 - c}{2(t+b)} \\ dx = dt \frac{t^2 + 2bt + c}{2(t+b)^2} \end{cases}$$

$$\frac{1}{\sqrt{x^2 + k}} \int^{x + \sqrt{x^2 + k}} \cancel{x} : \frac{1}{\sqrt{x^2 + 3}} \int^{x + \sqrt{x^2 + 3}} \cancel{x} : \frac{\sqrt{2}}{\sqrt{2x^2 + 5}} \int^{x + \sqrt{x^2 + 5/2}} \cancel{x}$$

$$\frac{1}{\sqrt{x^2 + 4x + 4}} \int^{x+2} \cancel{x} : \frac{1}{\sqrt{x^2 + x + 1}} \int^{x + \sqrt{x^2 + x + 1} + 1/2} \cancel{x} : \frac{2}{\sqrt{4x^2 + 2x + 1}} \int^{x + \sqrt{x^2 + x/2 + 1/4} + 1/4} \cancel{x}$$

$$\frac{1}{\sqrt{x^2 + 10x + 11}} \int^{x + \sqrt{x^2 + 10x + 11} + 5} \cancel{x}$$

$$\frac{3x + 1}{\sqrt{x^2 - x + 1}} \int [3\sqrt{x^2 - x + 1} + \frac{5}{2} x + \sqrt{x^2 - x + 1} - 1/2] \cancel{x} : \frac{5x + 2}{\sqrt{x^2 + 4x + 5}} \int [5\sqrt{x^2 + 4x + 5} - 8 x + \sqrt{x^2 + 4x + 5} + 2] \cancel{x}$$

$$\frac{5x + 11}{\sqrt{4x^2 + 4x + 3}} \int [\frac{5}{4}\sqrt{4x^2 + 4x + 3} + \frac{17}{4} x + \sqrt{x^2 + x + 3/4} + 1/2] \cancel{x} : \frac{3x - 7}{\sqrt{x^2 + 2x}} \int [3\sqrt{x^2 + 2x} - 10 x + \sqrt{x^2 + 2x} + 1] \cancel{x}$$

$$\frac{3x - 2}{\sqrt{10x^2 - 7x}} \int [\frac{3}{10}\sqrt{10x^2 - 7x} - \frac{19\sqrt{10}}{200} x / \sqrt{10} + \sqrt{10x^2 - 7x} - 7/2\sqrt{10}] \cancel{x}$$

$$\frac{2x + 7}{\sqrt{3x^2 + 5}} \int [\frac{2}{3}\sqrt{3x^2 + 5} + \frac{7}{\sqrt{3}} x + \sqrt{x + 5/3}] \cancel{x} : \frac{7x + 1}{\sqrt{x^2 + 4x + 7}} \int [7\sqrt{x^2 + 4x + 7} - 13 x + \sqrt{x^2 + 4x + 7} + 2] \cancel{x}$$

$$\frac{5x + 7}{\sqrt{3x^2 - 2x}} \int [\frac{5}{3}\sqrt{3x^2 - 2x} + \frac{26\sqrt{3}}{9} x / \sqrt{3} + \sqrt{3x^2 - 2x} - 1/\sqrt{3}] \cancel{x}$$

$$2\sqrt{x^2 + 9} \int [x\sqrt{x^2 + 9} + 9^{x + \sqrt{x^2 + 9}}] \cancel{x} : \sqrt{x^2 - 7x + 12} \int [\frac{2x - 7}{4}\sqrt{x^2 - 7x + 12} - \frac{1}{8} x + \sqrt{x^2 - 7x + 12} - 7/2] \cancel{x}$$

$$\sqrt{x^2 + 12x - 64} \int [\frac{x + 6}{2}\sqrt{x^2 + 12x - 64} - 50^{x + \sqrt{x^2 + 12x - 64} + 6}] \cancel{x}$$

$$\sqrt{x^2 - x - 1} \int [\frac{2x - 1}{4}\sqrt{x^2 - x - 1} - \frac{5}{8} x + \sqrt{x^2 - x - 1} - 1/2] \cancel{x} : \sqrt{4x^2 + 2x + 1} \int [\frac{4x + 1}{8}\sqrt{4x^2 + 2x + 1}]$$

$$\sqrt{8x^2 + 3x + 2} \int [\frac{16x + 3}{32}\sqrt{8x^2 + 3x + 2} + \frac{55}{256} x + \sqrt{x^2 + 3x/8 + 1/4} + 3/16] \cancel{x}$$

$$\begin{aligned}
& \frac{\sqrt{x^2+k}}{x^2} \\
& \frac{1}{x^{1/3}+\sqrt{x}} \left[2\sqrt{x} - 3x^{1/3} + 6x^{1/6} - 6^{1+x^{1/6}} \right] \cancel{\neq} \\
& \frac{3x}{x^{1/3}+\sqrt{x}} \left[2x^{3/2} - \frac{9}{4}x^{4/3} + \frac{18}{7}x^{7/6} - 3x + \frac{18}{5}x^{5/6} - \frac{9}{2}x^{2/3} + 6\sqrt{x} - 9x^{1/3} + 18x^{1/6} - 18^{1+x^{1/6}} \right] \cancel{\neq} \\
& \frac{x^{1/3}+1}{x^{1/3}-1} \left[x + 3x^{2/3} + 6x^{1/3} + 6^{x^{1/3}-1} \right] \cancel{\neq} \\
& \frac{1}{\sqrt{x-1}+(x-1)^{1/4}} \left[2\sqrt{x-1} - 4(x-1)^{1/4} - 4^{1+(x-1)^{1/4}} \right] \cancel{\neq} \\
& x^2\sqrt{x^2+9} \left[\frac{1}{4}x(x^2+9)^{3/2} - \frac{9}{8}x\sqrt{x^2+9} - \frac{81}{8}x+\sqrt{x^2+9} \right] \cancel{\neq} \\
& \frac{x^2}{\sqrt{x^2+5}} \left[\frac{x}{2}\sqrt{x^2+5} - \frac{5}{2}x+\sqrt{x^2+5} \right] \cancel{\neq} \\
& \frac{3x^2}{\sqrt{2x^2+7}} \left[\frac{3x}{4}\sqrt{2x^2+7} - \frac{21\sqrt{2}}{8}x+\sqrt{x^2+7/2} \right] \cancel{\neq} \\
& \frac{x^2+x}{\sqrt{2x^2+3}} \left[\frac{x+2}{4}\sqrt{2x^2+3} - \frac{3\sqrt{2}}{8}x+\sqrt{x^2+3/2} \right] \cancel{\neq} \\
& \frac{x^2-x+1}{\sqrt{x^2+x+1}} \left[\frac{2x-7}{4}\sqrt{x^2+x+1} + \frac{11}{8}x+\sqrt{x^2+x+1}+1/2 \right] \cancel{\neq} \\
& \frac{3x^2-2x-1}{\sqrt{x^2+4x-5}} \left[\frac{3x-22}{2}\sqrt{x^2+4x-5} + \frac{57}{2}x+\sqrt{x^2+4x-5}+2 \right] \cancel{\neq} \\
& \frac{x^3+2x^2+5x+1}{\sqrt{x^2+2}} \left[\left(\frac{1}{3}x^2+x+\frac{11}{3} \right) \sqrt{x^2+2} - x+\sqrt{x^2+2} \right] \cancel{\neq} \\
& \frac{2x^3+x^2+1}{\sqrt{2x^2+5x-12}} \left[\left(\frac{1}{3}x^2-\frac{11}{24}x+\frac{223}{32} \right) \sqrt{2x^2+5x-12} - \frac{1659\sqrt{2}}{128}\sqrt{2x+\sqrt{2x^2+5x-12}+5/2\sqrt{2}} \right] \cancel{\neq} \\
& \frac{x^4}{\sqrt{x^2-x-1}} \left[\left(\frac{1}{4}x^3+\frac{7}{24}x^2+\frac{71}{96}x+\frac{325}{192} \right) \sqrt{x^2-x-1} + \frac{203}{128}x+\sqrt{x^2-x-1}-1/2 \right] \cancel{\neq} \\
& \frac{2\sqrt{5}}{x\sqrt{x^2+5}} \left[-\frac{\sqrt{x^2+5}+\sqrt{5}}{\sqrt{x^2+5}-\sqrt{5}} \right] \cancel{\neq} \\
& \frac{1}{x^2\sqrt{x^2+x+1}} \left[-\frac{x^2+x+1}{x} + \frac{1}{4}\frac{\sqrt{x^2+x+1}+1+x/2}{\sqrt{x^2+x+1}-1-x/2} \right] \cancel{\neq}
\end{aligned}$$

$$\frac{1}{(x+1)\sqrt{x^2+x}} \left[2\sqrt{\frac{x}{x+1}} \right.$$

$$\frac{4\sqrt{2}}{(x-1)\sqrt{x^2+7}} \left[-\frac{2\sqrt{2}\sqrt{x^2+7}+x+7}{2\sqrt{2}\sqrt{x^2+7}-x-7} \right]$$

$$\frac{1}{x^2\sqrt{x^2-1}} \left[\frac{\sqrt{x^2-1}}{x} \right.$$

$$\frac{1}{(x-1)\sqrt{x^2+x+1}}$$

$$\frac{x^{1/4}}{3+\sqrt{x}} \left[\frac{4}{3}x^{3/4} - 12x^{1/4} + 12\sqrt{3}x^{1/4/\sqrt{3}} \right]$$

$$\frac{2\sqrt{x}}{1-x^{4/3}} \left[-12x^{1/6} + \frac{3}{2} \frac{x^{1/6}+1}{x^{1/6}-1} \right] + 3^{x^{1/6}} + \frac{3\sqrt{2}}{4} \frac{x^{1/3} + \sqrt{2}x^{1/6} + 1}{x^{1/3} - \sqrt{2}x^{1/6} + 1} + \frac{3\sqrt{2}}{2} \sqrt{2}x^{1/6} + 1 + \frac{3\sqrt{2}}{2} \sqrt{2}x^{1/6} - 1$$