

$$\int (6x^2 - 3x + 5) dx$$

$$= S(6x^2 - 3x + 5) dx = 2x^3 - 3x^2/2 + 5x + C$$

неберущийся интеграл

$$I_n = \int \frac{z^{2n} dz}{\sqrt{(1-z^2)(1-k^2z^2)}} \quad (n=0, 1, 2, \dots)$$

$$\int (2x^2 + 1)^3 dx$$

$$S(2x^2 + 1)^3 dx = S(8x^6 + 12x^4 + 6x^2 + 1) dx = 8x^7/7 + 12x^5/5 + 2x^3 + x + C$$

$$\int (1 + \sqrt{x})^4 dx$$

$$S(1 + \sqrt{x})^4 dx = S(1 + x^{1/2})^4 dx = S(1 + 4x^{1/2} + 6x + 4x^{3/2} + x^2) dx = x + 8x^{3/2}/3 + 3x^2 + 8x^{5/2} + x^3/3 + C$$

$$\int \frac{(x+1)(x^2-3)}{3x^2} dx$$

$$S((x+1)(x^2-3)/(3x^2)) dx = 1/3 S((x+1)(x^2-3)/x^2) dx = 1/3 S((x^3-3x+x^2-3)/x^2) dx = 1/3 S(x^3/x^2 - 3x/x^2 + x^2/x^2 - 3/x^2) dx = 1/3 S(x - 3/x + 1 - 3/x^2) dx = 1/3 (x^2/2 - 3 \ln|x| + x + 3x^{-1}) + C = x^2/6 - \ln|x| + x/3 + 1/x + C$$

$$\int \frac{(x - \sqrt{x})(1 + \sqrt{x})}{\sqrt[3]{x}} dx$$

$$S((x - \sqrt{x})(1 + \sqrt{x})/x^{1/3}) dx = S((x + x\sqrt{x} - \sqrt{x} - x)/x^{1/3}) dx = S((x^{3/2} - x^{1/2})/x^{1/3}) dx = S(x^{3/2}/x^{1/3} - x^{1/2}/x^{1/3}) dx = S(x^{7/6} - x^{1/6}) dx = x^{7/6+1}/(7/6+1) - x^{1/6+1}/(1/6+1) + C = 6x^{13/6}/13 - 6x^{7/6}/7 + C$$