

вносить под d только числовой коэф и открыть таб интегр

$$\begin{aligned} \int \frac{dx}{\sqrt{a^2-x^2}} &= S(dx/\sqrt{a^2-x^2}) = S(dx/a / \sqrt{a^2-x^2}/a) = \\ &= (1/a)S(dx / \sqrt{1^2-(x/a)^2}) = (1/a)S(ad(x/a) / \sqrt{1^2-(x/a)^2}) = \\ &= [x/a=y] = (1/a)S(ady / \sqrt{1^2-y^2}) = (a/a)S(dy/\sqrt{1^2-y^2}) = S(dy/\sqrt{1^2-y^2}) = \\ &= \arcsin y + C = \arcsin(x/a) + C \end{aligned}$$

$$\arcsin(a/x) + C$$

$$\begin{aligned} \int \frac{dx}{x^2+a^2} &= S(dx/(x^2+a^2)) = S(dx/a^2 / (x^2+a^2)/a^2) = (1/a^2)S(dx / ((x/a)^2+1^2)) = \\ &= (1/a^2)S(ad(x/a) / ((x/a)^2+1^2)) = [x/a=t] = (1/a^2)S(ad(t) / ((t)^2+1^2)) = \\ &= (1/a)S(d(t) / ((t)^2+1^2)) = (1/a)\operatorname{arctg}(t) + C = 1/a * \operatorname{arctg}(x/a) + C \end{aligned}$$

$$\int f(ax+b)dx = fS(ax+b)dx = f(S(axdx) + S(bdx)) = f(ax^2/2 + bx) + C = fax^2/2 + fbx + C$$

$$\begin{aligned} \int f(ax+b)dx &= Sf(ax+b)d(xa)/a = (1/a) Sf(ax+b)d(xa) = (1/a) Sf(ax+b)d(xa+b) = \\ &= [ax+b=t] = (1/a) Sf(t)dt \end{aligned}$$

$$\int f(ax+b) dx$$