218. $\displaystyle\int \frac{dx}{\sqrt{a+bx}\cdot\sqrt{a'+b'x}} = \frac{2}{\sqrt{-bb'}}\tan^{-1}\sqrt{\frac{-b'(a+bx)}{b(a'+b'x)}}.$

219. $\displaystyle\int \sqrt{\frac{1+x}{1-x}}\,dx = \sin^{-1}x - \sqrt{1-x^2}.$

220. $\displaystyle\int \frac{dx}{\sqrt{a \pm 2bx + cx^2}} =$

$$\frac{1}{\sqrt{c}}\log\left(\pm b + cx + \sqrt{c}\,\sqrt{a \pm 2bx + cx^2}\right).$$

221. $\displaystyle\int \frac{dx}{\sqrt{a \pm 2bx - cx^2}} = \frac{1}{\sqrt{c}}\sin^{-1}\frac{cx \mp b}{\sqrt{b^2+ac}}.$

222. $\displaystyle\int \frac{x\,dx}{\sqrt{a \pm 2bx + cx^2}} = \frac{1}{c}\sqrt{a \pm 2bx + cx^2}$

$$\mp \frac{b}{\sqrt{c^3}}\log\left(\pm b + cx + \sqrt{c}\,\sqrt{a \pm 2bx + cx^2}\right).$$

223. $\displaystyle\int \frac{x\,dx}{\sqrt{a \pm 2bx - cx^2}} = -\frac{1}{c}\sqrt{a \pm 2bx - cx^2} \pm \frac{b}{\sqrt{c^3}}\sin^{-1}\frac{cx \mp b}{\sqrt{b^2+ac}}.$

Forms Involving Trigonometric Functions

224. $\displaystyle\int \sin x\,dx = -\cos x$, or versin x.

225. $\displaystyle\int \cos x\,dx = \sin x$, or $-$ coversin x.

226. $\displaystyle\int \tan x\,dx = -\log\cos x.$

227. $\displaystyle\int \cot x\,dx = \log\sin x.$

228. $\displaystyle\int \sec x\,dx = \log(\sec x + \tan x) = \log\tan\left(\frac{\pi}{4} + \frac{x}{2}\right).$

229. $\displaystyle\int \csc x\,dx = \log(\csc x - \cot x) = \log\tan\frac{x}{2}.$

230. $\displaystyle\int \sin^2 x\,dx = -\tfrac{1}{2}\cos x\sin x + \tfrac{1}{2}x = \tfrac{1}{2}x - \tfrac{1}{4}\sin 2x.$

231. $\displaystyle\int \sin^3 x\,dx = -\tfrac{1}{3}\cos x(\sin^2 x + 2).$

232. $\displaystyle\int \sin^n x\,dx = -\frac{\sin^{n-1}x\cos x}{n} + \frac{n-1}{n}\int \sin^{n-2}x\,dx.$

233. $\displaystyle\int \cos^2 x\,dx = \tfrac{1}{2}\sin x\cos x + \tfrac{1}{2}x = \tfrac{1}{2}x + \tfrac{1}{4}\sin 2x.$

234. $\displaystyle\int \cos^3 x\,dx = \tfrac{1}{3}\sin x(\cos^2 x + 2).$

235. $\displaystyle\int \cos^n x\,dx = \frac{1}{n}\cos^{n-1}x\sin x + \frac{n-1}{n}\int \cos^{n-2}x\,dx.$

236. $\displaystyle\int \sin\frac{x}{a}\,dx = -a\cos\frac{x}{a}.$

237. $\displaystyle\int \cos\frac{x}{a}\,dx = a\sin\frac{x}{a}.$

238. $\displaystyle\int \sin(a+bx)\,dx = -\frac{1}{b}\cos(a+bx).$

239. $\displaystyle\int \cos(a+bx)\,dx = \frac{1}{b}\sin(a+bx).$

240. $\displaystyle\int \frac{dx}{\sin x} = \int \csc x\,dx = \log(\csc x - \cot x)$

$$= -\frac{1}{2}\log\frac{1+\cos x}{1-\cos x} = \log\tan\frac{x}{2}.$$

241. $\displaystyle\int \frac{dx}{\cos x} = \int \sec x\,dx = \log(\sec x + \tan x)$

$$= \frac{1}{2}\log\left(\frac{1+\sin x}{1-\sin x}\right) = \log\tan\left(\frac{\pi}{4} + \frac{x}{2}\right).$$

242. $\displaystyle\int \frac{dx}{\cos^2 x} = \int \sec^2 x\,dx = \tan x.$

243. $\displaystyle\int \frac{dx}{\cos^n x} = \frac{1}{n-1}\cdot\frac{\sin x}{\cos^{n-1}x} + \frac{n-2}{n-1}\int \frac{dx}{\cos^{n-2}x}.$

244. $\displaystyle\int \frac{dx}{1 \pm \sin x} = \mp\tan\left(\frac{\pi}{4} \mp \frac{x}{2}\right).$

245. $\displaystyle\int \frac{dx}{1+\cos x} = \tan\frac{x}{2}.$

246. $\displaystyle\int \frac{dx}{1-\cos x} = -\cot\frac{x}{2}.$

247. $\displaystyle\int \frac{dx}{a+b\sin x} = \frac{2}{\sqrt{a^2-b^2}}\tan^{-1}\frac{a\tan\frac{1}{2}x + b}{\sqrt{a^2-b^2}}$

$$= \frac{1}{\sqrt{b^2-a^2}}\log\frac{a\tan\frac{1}{2}x + b - \sqrt{b^2-a^2}}{a\tan\frac{1}{2}x + b + \sqrt{b^2-a^2}}.$$