Trigonometrische Formeln

49) $$\frac{\sin p+\sin q}{\cos p+\cos q}=\frac{\cos p-\cos q}{\sin q-\sin p}=\operatorname{tg}\frac{1}{2}(p+q)$$ (T-49)

50) $$\frac{\sin p+\sin q}{\cos p-\cos q}=\frac{\cos q+\cos p}{\sin q-\sin p}=\cot\frac{1}{2}(\mathrm{q}-\mathrm{p})$$ (T-50)

51) $$\frac{\operatorname{tg} p+\operatorname{tg} q}{\operatorname{tg} p-\operatorname{tg} q}=\frac{\cot \mathrm{p}+\cot \mathrm{q}}{\cot \mathrm{q}-\cot \mathrm{p}}=\frac{\sin(p+q)}{\sin(p-q)}$$ (T-51)

52) $$\frac{\operatorname{tg} p+\operatorname{tg} q}{\cot \mathrm{p}+\cot \mathrm{q}}=\frac{\operatorname{tg} p-\operatorname{tg} q}{\cot \mathrm{q}-\cot \mathrm{p}}=\operatorname{tg} p\cdot\operatorname{tg} q$$ (T-52)

53) $$\frac{\operatorname{tg} p+\cot \mathrm{q}}{\cot p+\operatorname{tg} q}=\frac{\cot \mathrm{q}-\operatorname{tg}\mathrm{p}}{\cot \mathrm{p}-\operatorname{tg}\mathrm{q}}=\operatorname{tg} p\cdot\cot \mathrm{q}$$ (T-53)

54) $$\frac{\operatorname{tg} p+\operatorname{tg} q}{\cot \mathrm{p}-\operatorname{tg}\mathrm{q}}=\operatorname{tg} p\cdot\operatorname{tg}(p+q)$$ (T-54)

55) $$\frac{\cot \mathrm{p}+\cot \mathrm{q}}{\cot \mathrm{p}-\operatorname{tg}\mathrm{q}}=\cot \mathrm{q}\cdot\operatorname{tg}(\mathrm{p}+\mathrm{q})$$ (T-55)

56) $$\frac{\operatorname{tg} p-\operatorname{tg} q}{\cot \mathrm{p}+\operatorname{tg}\mathrm{q}}=\operatorname{tg} p\cdot\operatorname{tg}(p-q)$$ (T-56)

57) $$\frac{\cot \mathrm{q}-\cot \mathrm{p}}{\operatorname{tg} q+\cot p}=\cot \mathrm{q}\cdot\operatorname{tg}(\mathrm{p}-\mathrm{q})$$ (T-57)

58) $$1+\operatorname{tg} p\cdot\operatorname{tg} q=\frac{\cos(p-q)}{\cos p\cdot\cos q};\quad 1-\operatorname{tg} p\cdot\operatorname{tg} q=\frac{\cos(p+q)}{\cos p\cdot\cos q}$$ (T-58)

59) $$\sin(p+q)\cdot\sin(p-q)=\sin^2 p-\sin^2 q=\frac{1}{2}\cos 2q-\frac{1}{2}cos2p$$ (T-59)

60) $$\cos(p+q)[\cdot]\cos(p-q)=\cos^2 p-\sin^2 q=\frac{1}{2}\cos 2q-\frac{1}{2}\sin 2p$$ (T-60)

61) $$\sin(p+q)[\cdot]\cos(p-q)=\frac{1}{2}\sin 2p+\frac{1}{2}\sin 2q$$ (T-61)

62) $$\sin(p-q)[\cdot]\cos(p+q)=\frac{1}{2}\sin 2p-\frac{1}{2}\sin 2q$$ (T-62)

$$\frac{\cos mu}{\cos^m u} = (m)_0 - (m)_2 \operatorname{tang}^2 u + (m)_4 \operatorname{tg}^4 u - (m)_6 \operatorname{tg}^6 u + \cdots \tag{T-63}$$

$$\frac{\sin mu}{\sin^m u} = (m)_1 \operatorname{tg} u - (m)_3 \operatorname{tg}^3 u + (m)_5 \operatorname{tg}^5 u - \cdots \tag{T-64}$$