

$$22. \sin 2x = 2 \sin x \cos x = \frac{2 \tan x}{1 + \tan^2 x}$$

$$23. \tan 2x = \frac{2 \tan x}{1 - \tan^2 x}$$

$$24. \cos 3x = 4 \cos^3 x - 3 \cos x$$

$$25. \sin 3x = 3 \sin x - 4 \sin^3 x$$

$$26. \tan 3x = \frac{3 \tan x - \tan^3 x}{1 - 3 \tan^2 x}$$

$$27. \cos x + \cos y = \frac{2 \cos \frac{x+y}{2} \cos \frac{x-y}{2}}$$

$$28. \cos x - \cos y = -\frac{2 \sin \frac{x+y}{2} \sin \frac{x-y}{2}}$$

$$29. \sin x + \sin y = \frac{2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}}$$

$$30. \sin x - \sin y = \frac{2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}}$$

$$31. 2 \cos x \cos y = \cos(x+y) + \cos(x-y)$$

$$32. -2 \sin x \sin y = \cos(x+y) - \cos(x-y)$$

$$33. 2 \sin x \cos y = \sin(x+y) + \sin(x-y)$$

$$34. 2 \cos x \sin y = \sin(x+y) - \sin(x-y)$$