(1) If y = c (constant), then $\frac{dc}{dx} = 0$

(2) If y = cx, where c is a constant, then $\frac{dy}{dx} = \frac{d(cx)}{dx} = c\frac{dx}{dx} = c$

(3) If y = c.u. where c is constant and u is a function of x, then $\frac{dy}{dx} = \frac{d(cu)}{dx} = c\frac{du}{dx}$

(4) If y = x^n, where n is a real number, then $\frac{dy}{dx} = \frac{dx^n}{dx} = n\,x^{n-1}$

(5) If y = Ax^n, where n is a real number, then

$$\frac{dy}{dx} = \frac{d\ Ax^n}{dx} = A\frac{dx^n}{dx} = A\left(n\,x^{n-1}\right)$$

(6) If y = u^n, where n is a real number and u is a function of x, then

$$\frac{dy}{dx} = \frac{d\left(u^n\right)}{du}\frac{du}{dx} = n\,u^{n-1}\,\frac{du}{dx}$$

(7) If y = u + v, where u and v are the functions of x, then $\frac{dy}{dx} = \frac{du}{dx} + \frac{dv}{dx}$

(8) If y = uv where u and v are the functions of x, then $\frac{dy}{dx} = u\frac{dv}{dx} + v\frac{du}{dx}$

(9) If $y = \frac{u}{v}$, where u and v are the functions of x then $\frac{dy}{dx} = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$

(10) If y = sin x, then $\frac{dy}{dx} = \frac{d(\sin Ax)}{dx} = A\cos Ax$

(11) If y = cos x, then $\frac{dy}{dx} = \frac{d(\cos Ax)}{dx} = -A\sin Ax$

(12) If y = tan x, then $\frac{dy}{dx} = \frac{d(\tan Ax)}{dx} = \sec^2 Ax$

(13) If y = sec x, then $\frac{dy}{dx} = \frac{d(\sec Ax)}{dx} = A\sec Ax\tan Ax$

(14) If y = cot x, then $\frac{dy}{dx} = \frac{d(\cot Ax)}{dx} = -A\cos ec^2 Ax$

(15) If y = cosec x, then $\frac{dy}{dx} = \frac{d(\cos ec\,Ax)}{dx} = -A\cot Ax.\cos ec\,Ax$

(16) If y = $\log_e$ (Ax) then $\frac{dy}{dx} = \frac{1}{x}$

(17) If y = e^{Ax}, then $\frac{dy}{dx} = \frac{d\left(e^{Ax}\right)}{dx} = Ae^{Ax}$