

$$1- f(x) = C, \quad C: \text{constant} \quad f'(x) = 0$$

$$2- f(x) = ax + b \quad f'(x) = a$$

$$3- f(x) = x^n \quad f'(x) = nx^{n-1}$$

$$4- f(x) = ag(x) \quad f'(x) = ag'(x)$$

$$5- f(x) = g(x) \pm k(x) \quad f'(x) = g'(x) \pm k'(x)$$

$$6- f(x) = g(x) \cdot k(x) \quad f'(x) = g(x) \cdot k'(x) + k(x) \cdot g'(x)$$

$$7- f(x) = \frac{g(x)}{k(x)} \quad f'(x) = \frac{k(x)g'(x) - g(x)k'(x)}{(k(x))^2}$$

$$8- f(x) = \frac{a}{g(x)} \quad f'(x) = \frac{-ag'(x)}{(g(x))^2}$$

$$9- f(x) = \{g(x)\}^n \quad f'(x) = n\{g(x)\}^{n-1} \cdot g'(x)$$

$$10- f(x) = \sqrt{g(x)} \quad f'(x) = \frac{g'(x)}{2\sqrt{g(x)}}$$

$$11- f(x) = \sin x \quad f'(x) = \cos x$$

$$12- f(x) = \cos x \quad f'(x) = -\sin x$$

$$13- f(x) = \tan x \quad f'(x) = \sec^2 x$$

$$14- f(x) = \cot x \quad f'(x) = -\csc^2 x$$