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$$y = a^x \quad y = \log_a x \quad a > 0 \quad a \neq 1$$

$$y = x \quad y = x^2 \quad y = x^3 \quad y = \frac{1}{x} \quad y = x^{\frac{1}{2}}$$

A

$$y = A \sin(x)$$

$$y = A \sin(x)$$

n

$$\frac{a+b}{2} - \sqrt{ab} \quad (a \geq 0, b \geq 0)$$

p *q*

$$y' = C - C \quad y = x \quad y = x^2 \quad y = \frac{1}{x}$$

$$\begin{aligned} (C) &= 0 \quad C \\ (\sin x) &= \cos x \quad (\cos x) = -\sin x \\ (e^x) &= e^x \quad (a^x) = a^x \ln a \quad a > 0 \quad a \neq 1 \\ (\ln x) &= \frac{1}{x} \quad (\log_a x) = \frac{1}{x} \log_a e \quad a > 0 \quad a \neq 1 \end{aligned}$$

$$\begin{aligned} [u(x) \pm v(x)] &= u'(x) \pm v'(x) \\ [u(x)v(x)] &= u'(x)v(x) + u(x)v'(x) \end{aligned}$$

$$\frac{u(x)}{v(x)} = \frac{u'(x)v(x) - u(x)v'(x)}{v^2(x)} \quad v(x) \neq 0$$

$$|a - b| \leq |a| + |b|$$

$$|a - b| \leq |a - c| + |c - b|$$

$$|ax - b| \leq c \iff |ax - b| \leq c \iff |x - a| + |x - b| \leq c$$

| | | | |

$$(a^2 + b^2)(c^2 + d^2) = (ac + bd)^2 + (ad - bc)^2$$

$$\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \sqrt{(x_2 - x_3)^2 + (y_2 - y_3)^2} = \sqrt{(x_1 - x_3)^2 + (y_1 - y_3)^2}$$

$$\sum_{i=1}^n a_i^2 + \sum_{i=1}^n b_i^2 = \left(\sum_{i=1}^n a_i b_i \right)^2$$

$$(1 + x)^n = \sum_{k=0}^n \binom{n}{k} x^k$$