By Rule
Differentiation by Rule

$$
\begin{aligned}
y & =x^{n} \\
\frac{d y}{d x} & =n x^{1-1}
\end{aligned}
$$

Multyly by power and reduce He power by 1.

$$
\begin{aligned}
y & =x^{3}+5 x^{2}+7 x+9 \\
\frac{d y}{d y} & =3 x^{2}+10 x+7 \\
y & =6 x^{2}+11 x+20 \\
\frac{d y}{d x} & =12 x+11 \\
y & =15 x+3 \\
\frac{d y}{d x} & =15
\end{aligned}
$$

Standard Form.

$$
\begin{aligned}
& y=x^{n}+x^{m}+ \\
& y=\text { maths tables }
\end{aligned}
$$

Ind $\frac{d y}{d x}$ when

$$
\begin{aligned}
& y=(2 x+1)(3 x+5) \\
& \frac{d y}{d z}=2(3)=C \Rightarrow y=6 x+c \\
& y=6 x^{2}+10 x+3 x+5 \\
& y=6 x^{2}+13 x+5 \\
& y=\frac{4 x^{2}-25}{2 x-5} \\
&(22-5) \\
& y=4 x^{2}-25 \\
& 2 x y-5 y=4 x^{2}-25 \\
& y=\frac{4 x^{2}-25}{2 x-5} \\
& y=\frac{(2 x+5)(2 x+5)}{2 x-5} \\
& y=\frac{d_{y}}{y_{2}} \\
& y=\frac{x^{2}-7 x+12}{x-3} \\
& y=\frac{x-5)(x-4)}{x+3}
\end{aligned}
$$

$$
\begin{aligned}
& \frac{d y}{d x}=1 \quad \begin{array}{c}
y=x^{\prime} \\
\frac{d y}{d y}=x^{0}
\end{array} \\
& y=\frac{1}{x^{2}} \quad \frac{1}{a^{p}}=a^{-p} \\
& y=x^{-2} \\
& y=-2 x^{-3}=\frac{-2}{x^{3}} \\
& \frac{d y}{d x}=-\sqrt{x} \\
& \frac{y}{y}=x^{\frac{1}{2}} \\
& y=\frac{1}{2} x^{-\frac{1}{2}}=\frac{1}{2} \frac{1}{x^{\frac{1}{2}}} \\
& \frac{d y}{d x}=\frac{1}{2 \sqrt{x}}
\end{aligned}
$$

