

89.

$$\frac{-1}{x^1} \rightarrow -1x^{-1}$$

$$\frac{-5}{x^2} = -5x^{-2}$$

$$-3at - 22$$

$$-32(3)$$

$$-96 - 22$$

$$-118$$

2.3A Rules

$$A. y = \underline{2x}(\underline{5x^2 + 3}) = 10x^3 + 6x$$

$$y' = ? \quad y' = 30x^2 + 6$$

$$y = \underline{2x}(\underline{5x^2 + 3})$$

$$y' = \underline{2}(5x^2 + 3) + 2x(\underline{10x})$$

$$y' = 10x^2 + 6 + 20x^2$$

$$= 30x^2 + 6$$

1. Product Rule - given $f(x)$ & $g(x)$

$$\frac{d}{dx} [f(x) \cdot g(x)] = f'(x)g(x) + f(x)g'(x)$$

Ex. $\frac{d}{dx} [(2x+3)(5x-7)]$

$$2(5x-7) + 5(2x+3)$$

$$10x - 14 + 10x + 15$$

$$20x + 1$$

$$\text{Ex. } (2x + 5x^2) \sin x$$

$$(2 + 10x) \sin x + (2x + 5x^2) \cos x$$

Ex. $\frac{d}{dx} [3x^2 \cos x]$ p. 126 1-6
13,14

$6x \cos x + (3x^2)(-\sin x)$

$3x [2 \cos x - x \sin x]$