

$$1. \frac{d}{dx} (12x^2 - 3x + 2) =$$

$$24x - 3$$

$$2. \frac{d}{dx} \left(\frac{5}{x} + \sqrt{x} - 0.3x^3 \right)$$

$$-\frac{5}{x^2} + \frac{1}{2\sqrt{x}} - 0.9x^2$$

$$3. \frac{d}{dx} \left(\frac{x^2}{\sqrt{x}} \right) =$$

$$\frac{d}{dx} \left(\frac{x^2}{x} \right) = \frac{d}{dx} (x) = 1$$

$$4. \frac{d}{dx} (\sin(3x))$$

$$3 \cos(3x)$$

$$5. \frac{d}{dx} (\cos(2x) \exp\{-3x\})$$

$$-2\sin(2x)e^{-3x} - 3e^{-3x}\cos(2x)$$

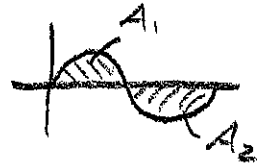
$$6. \int 8x^2 + 3x - 12dx$$

$$\frac{8}{3}x^3 + \frac{3}{2}x^2 - 12x + C$$

$$7. \int_0^{2\pi} \sin(x) dx = 0 \rightarrow$$

$$|A_1| = |A_2|$$

and $A_2 < 0$



$$8. \int_0^{10} 10 \exp\{-2x\} dx$$

$$-5e^{-2x} \Big|_0^{10} = 5 - \frac{5}{e^{20}} \approx 5$$

$$9. \int_1^5 \frac{dx}{\sqrt{9+x^2}}$$

$$\ln(x + \sqrt{x^2 + 9}) \Big|_1^5 = 0.96$$

$$10. \int_{-3}^3 2x^2 dx$$

$$= \left[\frac{2}{3} x^3 \right]_{-3}^3$$

$$= 36$$

