

Γ ΛΥΚΕΙΟΥ ΜΕΡΟΣ Α

15.19 1)

$$\alpha) \left[\ln(x^4 + x^2 + 2) \right]' = \frac{1}{x^4 + x^2 + 2} (x^4 + x^2 + 2)' = \frac{4x^3 + 2x}{x^4 + x^2 + 2}$$

$$\beta) \left[\ln(\eta\mu x - \sigma\upsilon\nu x) \right]' = \frac{1}{\eta\mu x - \sigma\upsilon\nu x} (\eta\mu x - \sigma\upsilon\nu x)' = \frac{\sigma\upsilon\nu x + \eta\mu x}{\eta\mu x - \sigma\upsilon\nu x}$$

15.19 2)

$$\frac{1}{5x^4 + 3x} \cdot (5x^4 + 3x)' = \frac{20x^3 + 3}{5x^4 + 3x}$$

15.19 3)

$$\frac{1}{x^7 - 3x} \cdot (x^7 - 3x)' = \frac{7x^6 - 3}{x^7 - 3x}$$

15.19 4)

$$\frac{1}{\sigma\upsilon\nu x} \cdot (\sigma\upsilon\nu x)' = -\frac{\eta\mu x}{\sigma\upsilon\nu x}$$

15.19 5)

$$\frac{1}{\eta\mu x} \cdot (\eta\mu x)' = \frac{\sigma\upsilon\nu x}{\eta\mu x}$$

15.19 6)

$$\frac{1}{\varepsilon\phi x} \cdot (\varepsilon\phi x)' = \frac{1}{\varepsilon\phi x \cdot \sigma\upsilon\nu^2 x}$$

15.19 7)

$$\frac{1}{\sigma\phi x} \cdot (\sigma\phi x)' = -\frac{1}{\sigma\phi x \cdot \eta\mu^2 x}$$

15.19 8)

$$\frac{1}{\frac{1}{x}} \cdot \left(\frac{1}{x} \right)' = \frac{-\frac{1}{x^2}}{\frac{1}{x}} = -\frac{1}{x}$$

15.19 9)

$$\frac{1}{x + e^x} \cdot (x + e^x)' = \frac{1 + e^x}{x + e^x}$$

15.19 11)

$$\frac{1}{\ln x} \cdot (\ln x)' = \frac{1}{x \ln x}$$

15.19 11)

$$\frac{1}{5^x} \cdot (5^x)' = \frac{\cancel{5^x} \ln 5}{\cancel{5^x}} = \ln 5$$

$$\frac{1}{\sqrt{x}} \cdot (\sqrt{x})' = \frac{1}{2\sqrt{x}\sqrt{x}} = \frac{1}{2x}$$