

Γ ΛΥΚΕΙΟΥ ΜΕΡΟΣ Α

15.20 1)

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

$$\beta) \left(\frac{1}{5^x - 4x} \right)' = -\frac{1}{(5^x - 4x)^2} (5^x \ln 5 - 4) = -\frac{5^x \ln 5 - 4}{(5^x - 4x)^2}$$

15.20 2)

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

15.20 3)

$$-\frac{1}{\varepsilon \varphi^2 x} \cdot (\varepsilon \varphi x)' = -\frac{1}{\varepsilon \varphi^2 x \cdot \sin^2 x}$$

15.20 4)

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

15.20 5)

$$-\frac{1}{(e^x)^2} \cdot (e^x)' = -\frac{1 \cancel{e^x}}{e^{\cancel{2}x}} = -\frac{1}{e^x}$$

15.20 6)

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

15.20 7)

$$-\frac{1}{(3x^5 + 2)^2} \cdot (3x^5 + 2)' = -\frac{15x^4}{(3x^5 + 2)^2}$$

15.20 8)

$$-\frac{1}{(x^3 - 2x)^2} \cdot (x^3 - 2x)' = -\frac{3x^2 - 2}{(x^3 - 2x)^2}$$

15.20 9)

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

15.20 10)

$$-\frac{1}{(7^x)^2} \cdot (7^x)' = -\frac{\cancel{7^x} \ln 7}{7^{\cancel{2}x}} = -\frac{\ln 7}{7^x}$$

15.20 11)

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

