15.7 1)

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

β) $(x^2)'\eta\mu x + x^2(\eta\mu x)' = 2x\cdot\eta\mu x + x^2\sigma\upsilon\nu x$

γ) $(e^x)'\sqrt{x} + e^x(\sqrt{x})' = e^x\sqrt{x} + e^x\frac{1}{2\sqrt{x}}$

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

15.7 2)

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

15.7 3)

$$\left(\frac{1}{x}\right)'6^x + \frac{1}{x}(6^x)' = -\frac{1}{x^2}6^x + \frac{1}{x}6^x\ln 6$$

15.7 4)

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

15.7 5)

$$(e^x)'\sigma\upsilon\nu x + e^x(\sigma\upsilon\nu x)' = e^x\sigma\upsilon\nu x - e^x\eta\mu x$$

15.7 6)

$$(4x^3)'\varepsilon\varphi x + 4x^3(\varepsilon\varphi x)' = 12x^2\varepsilon\varphi x + \frac{4x^3}{\sigma\upsilon\nu^2 x}$$

15.7 7)

$$(\eta\mu x)'\sigma\upsilon\nu x + \eta\mu x(\sigma\upsilon\nu x)' = \sigma\upsilon\nu x\cdot\sigma\upsilon\nu x + \eta\mu x(-\eta\mu x) = \sigma\upsilon\nu^2 x - \eta\mu^2 x$$

15.7 8)

$$(e^x)'\eta\mu x + e^x(\eta\mu x)' = e^x\eta\mu x + e^x\sigma\upsilon\nu x$$

15.7 9)

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

15.7 10)

$$(4^x)'\eta\mu x + 4^x(\eta\mu x)' = 4^x\ln 4\cdot\eta\mu x + 4^x\sigma\upsilon\nu x$$

15.7 11)

$$\left(\frac{1}{x}\right)'\varepsilon\varphi x+\frac{1}{x}\left(\varepsilon\varphi x\right)'=-\frac{1}{x^2}\varepsilon\varphi x+\frac{1}{x\sigma\upsilon\nu^2 x}$$

15.7 12)

$$\left(e^x\right)'\sigma\varphi x+e^x\left(\sigma\varphi x\right)'=e^x\sigma\varphi x-\frac{e^x}{\eta\mu^2 x}$$

15.7 13)

$$\left(\sqrt{x}\right)'\sigma\varphi x+\sqrt{x}\left(\sigma\varphi x\right)'=\frac{1}{2\sqrt{x}}\sigma\varphi x-\frac{\sqrt{x}}{\eta\mu^2 x}$$

15.7 14)

$$\left(\sqrt{x}\right)'3^x+\sqrt{x}\left(3^x\right)'=\frac{1}{2\sqrt{x}}3^x+\sqrt{x}\cdot 3^x\ln 3$$

15.7 15)

$$\left(x^2\right)'\sqrt{x}+x^2\left(\sqrt{x}\right)'=2x\sqrt{x}+\frac{x^2}{2\sqrt{x}}$$

15.7 16)

$$\left(3x^2-2x\right)'\frac{1}{x}+\left(3x^2-2x\right)\left(\frac{1}{x}\right)'=\frac{6x-2}{x}-\frac{3x^2-2x}{x^2}$$

15.7 17)

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

15.7 18)

$$\left(\varepsilon\varphi x\right)'\ln x+\varepsilon\varphi x\left(\ln x\right)'=\frac{\ln x}{\sigma\upsilon\nu^2 x}+\frac{\varepsilon\varphi x}{x}$$

15.7 19)

$$\left(x^3-x+5\right)'\sigma\varphi x+\left(x^3-x+5\right)\left(\sigma\varphi x\right)'=\left(3x^2-1\right)\sigma\varphi x-\frac{x^3-x+5}{\eta\mu^2 x}$$

15.7 20)

20) $\left(\sigma\varphi x\cdot\ln x\right)'=\left(\sigma\varphi x\right)'\cdot\ln x+\sigma\varphi x\cdot\left(\ln x\right)'=-\frac{\ln x}{\eta\mu^2 x}+\frac{\sigma\varphi x}{x}$

15.7 21)

21) $\left(\sigma\upsilon\nu x\cdot\sigma\varphi x\right)'=\left(\sigma\upsilon\nu x\right)'\cdot\sigma\varphi x+\sigma\upsilon\nu x\cdot\left(\sigma\varphi x\right)'=-\eta\mu x\cdot\sigma\varphi x-\frac{\sigma\upsilon\nu x}{\eta\mu^2 x}$

15.7 22)

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

15.7 23)

23) $\left(e^x\cdot 7^x\right)'=\left(e^x\right)'\cdot 7^x+e^x\cdot\left(7^x\right)'=e^x\cdot 7^x+e^x\cdot 7^x\ln 7$

15.7 24)

24) $\left(x^4 \cdot \eta\mu x\right)' = \left(x^4\right)' \cdot \eta\mu x + x^4 \cdot \left(\eta\mu x\right)' = 4x^3 \eta\mu x + x^4 \sigma\upsilon\nu x$

15.7 25)

25) $\left(x^3 \cdot 2^x\right)' = \left(x^3\right)' \cdot 2^x + x^3 \cdot \left(2^x\right)' = 3x^2 \cdot 2^x + x^3 \cdot 2^x \ln 2$

15.7 26)

26) $\left(\eta\mu x \cdot \ln x\right)' = \left(\eta\mu x\right)' \cdot \ln x + \eta\mu x \cdot \left(\ln x\right)' = \sigma\upsilon\nu x \cdot \ln x + \dfrac{\eta\mu x}{x}$

15.7 27)

27) $\left(\sqrt{x} \cdot \varepsilon\varphi x\right)' = \left(\sqrt{x}\right)' \cdot \varepsilon\varphi x + \sqrt{x} \cdot \left(\varepsilon\varphi x\right)' = \dfrac{\varepsilon\varphi x}{2\sqrt{x}} + \dfrac{\sqrt{x}}{\sigma\upsilon\nu^2 x}$

15.7 28)

28) $\left(\dfrac{1}{x} \cdot \sigma\upsilon\nu x\right)' = \left(\dfrac{1}{x}\right)' \cdot \sigma\upsilon\nu x + \dfrac{1}{x} \cdot \left(\sigma\upsilon\nu x\right)' = -\dfrac{\sigma\upsilon\nu x}{x^2} - \dfrac{\eta\mu x}{x}$