15.23 1)

α) $\left[\eta\mu\left(x^2-\ln x\right)\right]'=\sigma\upsilon\nu\left(x^2-\ln x\right)\cdot\left(x^2-\ln x\right)'=\sigma\upsilon\nu\left(x^2-\ln x\right)\cdot\left(2x-\frac{1}{x}\right)$

β) $\left(9^{3^x+7e^x}\right)'=9^{3^x+7e^x}\cdot\left(3^x+7e^x\right)'=9^{3^x+7e^x}\cdot\left(3^x\ln 3+7e^x\right)\ln 9$

15.23 2)

$\left(e^{x^5-\sigma\varphi x}\right)'=e^{x^5-\sigma\varphi x}\cdot\left(x^5-\sigma\varphi x\right)'=e^{x^5-\sigma\varphi x}\cdot\left(5x^4+\frac{1}{\eta\mu^2 x}\right)$

15.23 3)

$\left[\left(\sigma\upsilon\nu x-2\ln x\right)^4\right]'=4\left(\sigma\upsilon\nu x-2\ln x\right)^3\left(\sigma\upsilon\nu x-2\ln x\right)'=$

$=4\left(\sigma\upsilon\nu x-2\ln x\right)^3\left(-\eta\mu x-\frac{2}{x}\right)$

15.23 4)

$\left(4^{\sqrt{x}+2\eta\mu x}\right)'=4^{\sqrt{x}+2\eta\mu x}\left(\sqrt{x}+2\eta\mu x\right)'=4^{\sqrt{x}+2\eta\mu x}\left(\frac{1}{2\sqrt{x}}+2\sigma\upsilon\nu x\right)$

15.23 5)

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

15.23 6)

$\left[\ln\left(\frac{1}{x}+4\sqrt{x}\right)\right]'=\frac{1}{\frac{1}{x}+4\sqrt{x}}\cdot\left(\frac{1}{x}+4\sqrt{x}\right)'=\frac{1}{\frac{1}{x}+4\sqrt{x}}\cdot\left(-\frac{1}{x^2}+\cancel{4}^{2}\frac{1}{\cancel{2}\sqrt{x}}\right)$

15.23 7)

$\left[\left(x^3-\varepsilon\varphi x\right)^2\right]'=2\left(x^3-\varepsilon\varphi x\right)\cdot\left(x^3-\varepsilon\varphi x\right)'=2\left(x^3-\varepsilon\varphi x\right)\cdot\left(3x^2-\frac{1}{\sigma\upsilon\nu^2 x}\right)$

15.23 8)

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

15.23 9)

$\left(6^{\frac{1}{x}-\varepsilon\varphi x}\right)'=6^{\frac{1}{x}-\varepsilon\varphi x}\cdot\ln 6\cdot\left(\frac{1}{x}-\varepsilon\varphi x\right)'=6^{\frac{1}{x}-\varepsilon\varphi x}\cdot\left(-\frac{1}{x^2}-\frac{1}{\sigma\upsilon\nu^2 x}\right)\cdot\ln 6$

15.23 10)

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

15.23 11)

$\left[\eta\mu\left(5^x-e^x\right)\right]'=\sigma\upsilon\nu\left(5^x-e^x\right)\cdot\left(5^x-e^x\right)'=\sigma\upsilon\nu\left(5^x-e^x\right)\cdot\left(5^x\ln 5-e^x\right)$

15.23 12)

$$\left[\ln\left(2^x-5^x\right)\right]'=\frac{1}{2^x-5^x}\cdot\left(2^x\ln 2-5^x\ln 5\right)$$

15.23 13)

$$\left[\sigma\varphi\left(x^3-3\sqrt{x}\right)\right]'=-\frac{1}{\eta\mu^2\left(x^3-3\sqrt{x}\right)}\cdot\left(x^3-3\sqrt{x}\right)'=-\frac{3x^2-\frac{3}{2\sqrt{x}}}{\eta\mu^2\left(x^3-3\sqrt{x}\right)}$$

15.23 14)

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

15.23 15)

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

15.23 16)

$$\left(e^{x^3+\varepsilon\varphi x}\right)'=\left(e^{x^3+\varepsilon\varphi x}\right)\left(x^3+\varepsilon\varphi x\right)'=\left(e^{x^3+\varepsilon\varphi x}\right)\left(3x^2+\frac{1}{\sigma\upsilon\nu^2 x}\right)$$

15.23 17)

$$\left(\sigma\varphi^9 x\right)'=9\sigma\varphi^8 x\cdot\left(\sigma\varphi x\right)'=9\sigma\varphi^8 x\cdot\left(-\frac{1}{\eta\mu^2 x}\right)=-\frac{9\sigma\varphi^8 x}{\eta\mu^2 x}$$

15.23 18)

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

15.23 19)

$$\left(14^{\frac{1}{x}+2\sqrt{x}}\right)'=14^{\frac{1}{x}+2\sqrt{x}}\ln 14\cdot\left(\frac{1}{x}+2\sqrt{x}\right)'=14^{\frac{1}{x}+2\sqrt{x}}\ln 14\cdot\left(-\frac{1}{x^2}+\frac{\cancel{2}1}{\cancel{2}\sqrt{x}}\right)=$$

$$=14^{\frac{1}{x}+2\sqrt{x}}\ln 14\cdot\left(-\frac{1}{x^2}+\frac{1}{\sqrt{x}}\right)$$

15.23 20)

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

15.23 21)

$$\left(\sqrt{\frac{1}{x}+4\sigma\upsilon\nu x}\right)'=\frac{1}{2\sqrt{\frac{1}{x}+4\sigma\upsilon\nu x}}\left(\frac{1}{x}+4\sigma\upsilon\nu x\right)'=\frac{1}{2\sqrt{\frac{1}{x}+4\sigma\upsilon\nu x}}\left(-\frac{1}{x}-4\eta\mu x\right)$$

15.23 22)

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

15.23 23)

$$\left[\varepsilon\varphi\left(e^x-3\sigma\upsilon\nu x\right)\right]'=\frac{1}{\sigma\upsilon\nu^2\left(e^x-3\sigma\upsilon\nu x\right)}\cdot\left(e^x-3\sigma\upsilon\nu x\right)'=\frac{e^x+3\eta\mu x}{\sigma\upsilon\nu^2\left(e^x-3\sigma\upsilon\nu x\right)}$$

15.23 24)

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

15.23 25)

$$\left[\eta\mu\left(5^x-6\sigma\upsilon\nu x\right)\right]'=\sigma\upsilon\nu\left(5^x-6\sigma\upsilon\nu x\right)\cdot\left(5^x-6\sigma\upsilon\nu x\right)'=$$

$$=\sigma\upsilon\nu\left(5^x-6\sigma\upsilon\nu x\right)\cdot\left(5^x\ln 5+6\eta\mu x\right)$$

15.23 26)

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