15.5 1)

α) $\left(2x^3+4\ln x-3\sqrt{x}-5\right)'=2\cdot 3x^2+4\cdot\frac{1}{x}-3\cdot\frac{1}{2\sqrt{x}}-0=6x^2+\frac{4}{x}-\frac{3}{2\sqrt{x}}$

β) $\left(\frac{5x^4}{6}+2\sqrt[4]{x^3}-\frac{2e^x}{7}+4\sigma\varphi x\right)'\overset{\sqrt[4]{x^3}=x^{\frac{3}{4}}}{=}\frac{5}{\cancel{6}_{3}}\cdot\cancel{4}^{2}x^3+\cancel{2}\cdot\frac{3}{\cancel{4}_{2}}x^{\frac{3}{4}-1}-\frac{2}{7}e^x-4\frac{1}{\eta\mu^2x}=$

$=\frac{10x^3}{3}+\frac{3x^{-\frac{1}{4}}}{2}-\frac{2e^x}{7}-\frac{4}{\eta\mu^2x}=\frac{10x^3}{3}+\frac{3}{2\sqrt[4]{x}}-\frac{2e^x}{7}-\frac{4}{\eta\mu^2x}$

γ) $\left(4x^6-\frac{3}{5x^{10}}-2\eta\mu x\right)'=4\cdot 6x^5-\frac{3}{\cancel{5}}\left(-\cancel{10}^{2}\right)x^{-11}-2\sigma\upsilon\nu x=24x^5+\frac{6}{x^{11}}+2\sigma\upsilon\nu x$

δ) $\left(\frac{2\sigma\upsilon\nu x+2e^x}{7}-2\varepsilon\varphi x\right)'=\frac{1}{7}\left(-2\eta\mu x+2e^x\right)-2\frac{1}{\sigma\upsilon\nu^2x}=\frac{-2\eta\mu x+2e^x}{7}-\frac{2}{\sigma\upsilon\nu^2x}$

15.5 2)

$\left(\sqrt{x}+e^x-2\eta\mu x+4\right)'=\frac{1}{2\sqrt{x}}+e^x-2\sigma\upsilon\nu x+0=\frac{1}{2\sqrt{x}}+e^x-2\sigma\upsilon\nu x$

15.5 3)

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

15.5 4)

$\left(\frac{x^4}{5}+6^x+\frac{7}{x}-2\right)'=\frac{1}{5}4x^3+6^x\ln 6+7\frac{-1}{x^2}-0=\frac{4x^3}{5}+6^x\ln 6-\frac{7}{x^2}$

15.5 5)

$\left(\frac{4}{x^5}-\frac{3\sigma\upsilon\nu x}{2}+4\sqrt{x}+1\right)'\overset{\frac{4}{x^5}=4x^{-5}}{=}4(-5)x^{-6}-\frac{3}{2}(-\eta\mu x)+\cancel{4}^{2}\frac{1}{\cancel{2}\sqrt{x}}+0=$

$=-\frac{20}{x^6}+\frac{3\eta\mu x}{2}+\frac{2}{\sqrt{x}}$

15.5 6)

$\left(2\sigma\varphi x+7^x-\frac{3e^x-1}{4}\right)'=2\left(-\frac{1}{\eta\mu^2x}\right)+7^x\ln 7-\frac{1}{4}\left(3e^x-0\right)=-\frac{2}{\eta\mu^2x}+7^x\ln 7-\frac{3e^x}{4}$

15.5 7)

$\left(x^{100}-\sqrt{x}+\frac{4}{x}-2\varepsilon\varphi x\right)'=100x^{99}-\frac{1}{2\sqrt{x}}+4\left(-\frac{1}{x^2}\right)-2\frac{1}{\sigma\upsilon\nu^2x}=$

$=100x^{99}-\frac{1}{2\sqrt{x}}-\frac{4}{x^2}-\frac{2}{\sigma\upsilon\nu^2x}$

15.5 8)

$\left(x^4-3\eta\mu x-\frac{3\ln x}{8}+5\sigma\upsilon\nu\frac{\pi}{7}\right)'=4x^3-3\sigma\upsilon\nu x-\frac{3}{8}\cdot\frac{1}{x}+0=4x^3-3\sigma\upsilon\nu x-\frac{3}{8x}$

15.5 9)

$$\left(4x^3-7e^x+3\cdot 2^x-\frac{2}{x}\right)'=4\cdot 3x^2-7e^x+3\cdot 2^x\ln 2-2\left(-\frac{1}{x^2}\right)=$$

$$=12x^2-7e^x+3\cdot 2^x\ln 2+\frac{2}{x^2}$$

15.5 10)

$$\left(4\ln x+\frac{2e^x}{7}-2\sqrt{x}+1\right)'=4\cdot\frac{1}{x}+\frac{2}{7}e^x-\cancel{2}\cdot\frac{1}{\cancel{2}\sqrt{x}}+0=\frac{4}{x}+\frac{2e^x}{7}-\frac{1}{\sqrt{x}}$$

15.5 11)

$$\left(\frac{2\eta\mu x-5\varepsilon\varphi x}{4}+\frac{3e^x-\sqrt{x}}{5}+\frac{1}{x}\right)'=\frac{1}{4}\left(2\sigma\upsilon\nu x-5\frac{1}{\sigma\upsilon\nu^2 x}\right)+\frac{1}{5}\left(3e^x-\frac{1}{2\sqrt{x}}\right)-\frac{1}{x^2}=$$

$$=\frac{2\sigma\upsilon\nu x-5\dfrac{1}{\sigma\upsilon\nu^2 x}}{4}+\frac{3e^x-\dfrac{1}{2\sqrt{x}}}{5}-\frac{1}{x^2}$$

15.5 12)

$$\left(\frac{2x^3}{3}-\sigma\varphi x+3\ln x-7\cdot 3^x+1\right)'=\frac{1}{\cancel{3}}\cdot 2\cdot\cancel{3}x^2-\left(-\frac{1}{\eta\mu^2 x}\right)+3\cdot\frac{1}{x}-7\cdot 3^x\ln 3+0=$$

$$=2x^2+\frac{1}{\eta\mu^2 x}+\frac{3}{x}-7\cdot 3^x\ln 3$$