From the substitution:

$$y = -\frac{1}{f}\frac{df}{dx}$$

We get

$$\frac{d^2 f}{dx^2} + x^2 f = 0$$

Which is solved to obtain:

$$f(x) = \sqrt{x}\left[AJ_{\frac{1}{4}}\left(\frac{x^2}{2}\right) + BJ_{-\frac{1}{4}}\left(\frac{x^2}{2}\right)\right]$$

From the relation $J_{-\nu}(z) = (-1)^{\nu}J_{\nu}(z)$ we write:

$$f(x) = \left(A + (-1)^{\frac{1}{4}}B\right)\sqrt{x}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right)\ OR\ f(x) = C\sqrt{x}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right)$$

$$\Rightarrow \frac{df}{dx} = C\left\{\frac{1}{2\sqrt{x}}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right) + x\sqrt{x}\left[\frac{1}{2x^2}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right) - J_{\frac{5}{4}}\left(\frac{x^2}{2}\right)\right]\right\}$$

Having used $J'_{\nu}(z) = \frac{\nu}{z}J_{\nu}(z) - J_{\nu+1}(z)$

$$\therefore y = -\frac{1}{f}\frac{df}{dx} = -\frac{C\left\{\frac{1}{2\sqrt{x}}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right) + x\sqrt{x}\left[\frac{1}{2x^2}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right) - J_{\frac{5}{4}}\left(\frac{x^2}{2}\right)\right]\right\}}{C\sqrt{x}J_{\frac{1}{4}}\left(\frac{x^2}{2}\right)}$$

$$= \frac{xJ_{\frac{5}{4}}\left(\frac{x^2}{2}\right)}{J_{\frac{1}{4}}\left(\frac{x^2}{2}\right)} - \frac{1}{x} + D; D\ is\ a\ constant\ of\ integration$$

From the initial condition, $y(1) = 0$, we obtain $D = 1 - \frac{J_{\frac{5}{4}}\left(\frac{1}{2}\right)}{J_{\frac{1}{4}}\left(\frac{1}{2}\right)}$

With the above relations $y(2) = 5.393687941$. But from the Runge–Kutta–Fehlberg, I had $y(2) = 6.7479267$.