> $with(plots):$

> $f := \frac{1}{2} + 0.205\cdot(2\cdot x - 1)\cdot\left(4 - \left(\left(\frac{14\cdot x - 7}{10}\right)^2\right)^{\frac{1}{3}} - 2\cdot\left(\left(\frac{14\cdot x - 7}{10}\right)^8\right)^{\frac{1}{3}}\right);$

$$f := \frac{1}{2} + 0.205\,(2\,x - 1)\,\left(4 - \left(\left(\frac{7}{5}\,x - \frac{7}{10}\right)^2\right)^{1/3} - 2\,\left(\left(\frac{7}{5}\,x - \frac{7}{10}\right)^8\right)^{1/3}\right) \quad \textbf{(1)}$$

> $P6 := plot(f, x = -0\,..1, color = cyan, numpoints = 1000):$

>

>

>

>

>

>

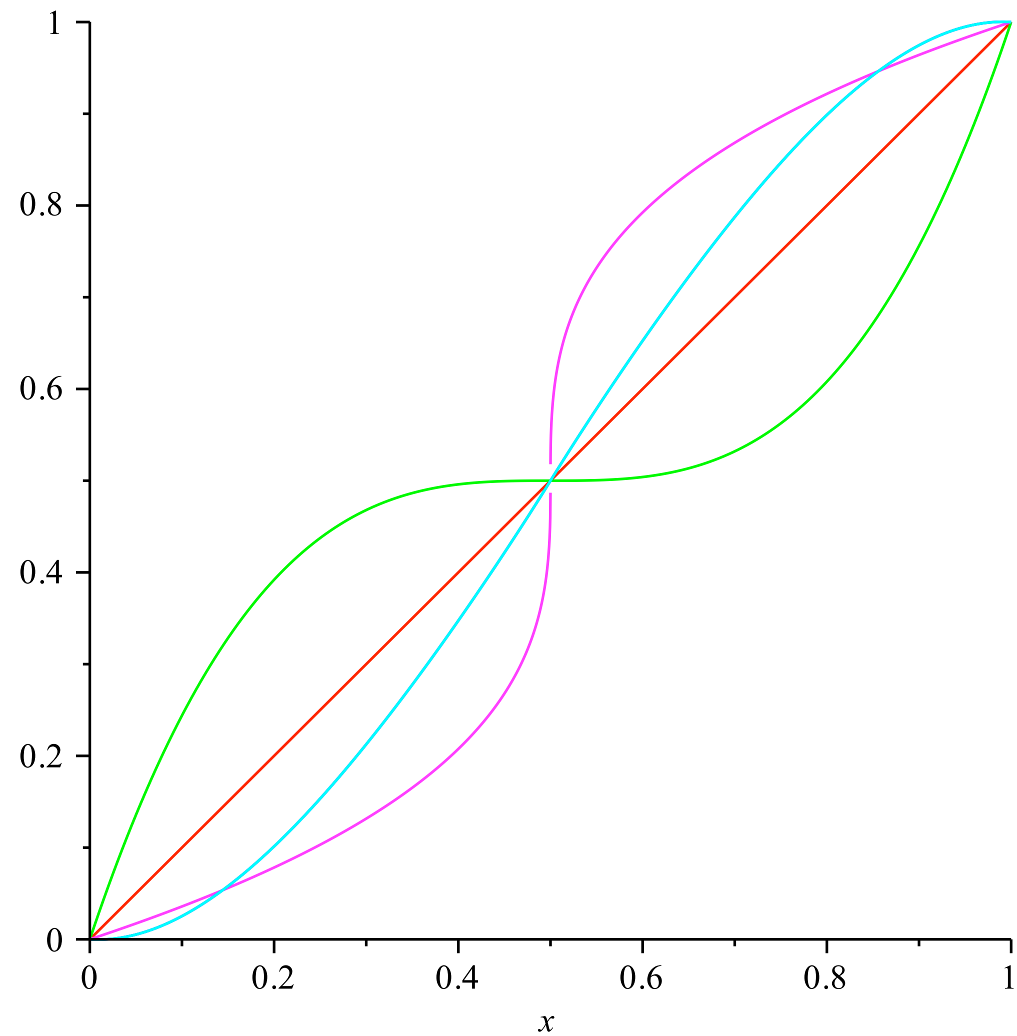
>

>

>

> $P1 := plot(x, x = 0\,..1, color = red) : P2 := plot\left(4\cdot x^3 - 6\cdot x^2 + 3\cdot x, x = 0\,..1, color = green\right) : P3 := plot\left(\frac{1}{2}\cdot(2\cdot x - 1)^{\frac{1}{3}} + \frac{1}{2}, x = 0\,..1, color = magenta, numpoints = 1000\right) : P4 := plot\left(\frac{-1}{2}\cdot(1 - 2\cdot x)^{\frac{1}{3}} + \frac{1}{2}, x = 0\,..1, color = magenta, numpoints = 1000\right):$

> $display(P1, P2, P3, P4, P5, P6);$




> $f := subs\left(c = -a - b + \frac{1}{2}, (2\cdot x - 1)\cdot\left(a + b\cdot(2x-1)^2 + c\cdot(2\cdot x - 1)^4\right) + \frac{1}{2}\right);$
> $subs(x = 1, f);$

$$f := (2x-1)\left(a + b(2x-1)^2 + \left(-a - b + \frac{1}{2}\right)(2x-1)^4\right) + \frac{1}{2}$$

$$1 \quad \textbf{(2)}$$

> $P5 := plot\left(subs\left(a = \frac{1}{2}, b = -1, f\right), x = 0..1, color = blue, numpoints = 1000\right):$

>

>

>

> $solve(subs(x = 1, f) - 1, c);$

$$-a + \frac{1}{2} \quad \textbf{(3)}$$

>

>

>

>

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

>

>

>

>

> $solve(4\cdot x^3-6\cdot x^2+3\cdot x-y,x);$

$$\frac{1}{2}\,(2\,y-1)^{1/3}+\frac{1}{2},\ -\frac{1}{4}\,(2\,y-1)^{1/3}+\frac{1}{4}\,\mathrm{I}\,\sqrt{3}\,(2\,y-1)^{1/3}+\frac{1}{2},\ -\frac{1}{4}\,(2\,y-1)^{1/3}-\frac{1}{4}\,\mathrm{I}\,\sqrt{3}\,(2\,y-1)^{1/3}+\frac{1}{2} \quad \textbf{(4)}$$

>

>

>

> $sum\left(\frac{u^n\cdot p!}{n!\cdot(n+p)!},n=0..infinity\right);$

$$\frac{\mathrm{BesselI}\left(p,2\,\sqrt{u}\right)\,\Gamma(1+p)}{u^{\frac{1}{2}\,p}} \quad \textbf{(5)}$$

> $simplify(subs(p=4,\%));$

$$\frac{1}{u^{7/2}}\left(24\,\left(-6\,\mathrm{BesselI}\left(1,2\,\sqrt{u}\right)+6\,\mathrm{BesselI}\left(0,2\,\sqrt{u}\right)\sqrt{u}-4\,\mathrm{BesselI}\left(1,2\,\sqrt{u}\right)u+\mathrm{BesselI}\left(0,2\,\sqrt{u}\right)u^{3/2}\right)\right) \quad \textbf{(6)}$$

>

>

>

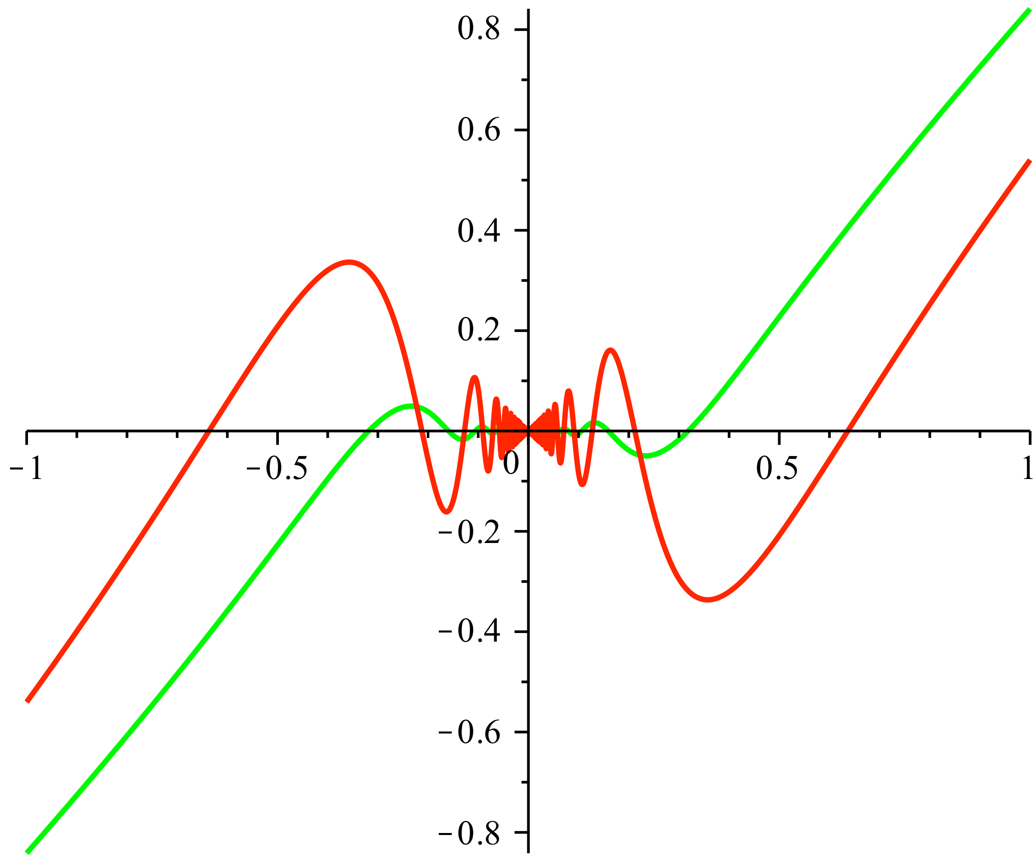
> $f:=x\cdot\sin\left(\frac{1}{x}\right):\ g:=x\cdot\cos\left(\frac{1}{x}\right):$

> $with(plots):$

>

> $P1:=plot(f,x=-1..1,scaling=constrained,color=green,thickness=2,numpoints=1500):$

> $P2:=plot(g,x=-1..1,scaling=constrained,color=red,thickness=2,numpoints=1500):$
$display(P1,P2);$



0.8
0.6
0.4
0.2
−1
−0.5
0
0.5
1
−0.2
−0.4
−0.6
−0.8


>