> $\arcsin\left(\sqrt{\dfrac{((-12)\cdot 1.000059)}{(-12+1.00059)\cdot 2.04}}\right)$

$$0.8202459635 \tag{1}$$

> $b := \arcsin\left(\sqrt{\dfrac{(-12\cdot 1.000059)}{(-12+1.00059)\cdot 2.04}}\right);$

$$b := 0.8202459635 \tag{2}$$

> $evalf\left(\dfrac{180}{\pi}\cdot b\right)$

$$46.99663185 \tag{3}$$

> $f := x \rightarrow \dfrac{\left(\cos(b)-\dfrac{1.000293}{1.429}\cdot\cos(x)\right)}{\left(\sin(b)-\dfrac{1.000293}{1.429}\cdot\sin(x)\right)}$

$$f := x \rightarrow \dfrac{\cos(b)+\dfrac{(-1)\cdot 1.000293\cos(x)}{1.429}}{\sin(b)+\dfrac{(-1)\cdot 1.000293\sin(x)}{1.429}} \tag{4}$$

> $f(b)$

$$0.9326249958 \tag{5}$$

> $\dfrac{180}{3.14}\arctan(f(b))$

$$43.02518006 \tag{6}$$

> $with(plots);$

$[animate, animate3d, animatecurve, arrow, changecoords, complexplot, complexplot3d,$ $\qquad(7)$
$\quad conformal, conformal3d, contourplot, contourplot3d, coordplot, coordplot3d, densityplot,$
$\quad display, dualaxisplot, fieldplot, fieldplot3d, gradplot, gradplot3d, implicitplot,$
$\quad implicitplot3d, inequal, interactive, interactiveparams, intersectplot, listcontplot,$
$\quad listcontplot3d, listdensityplot, listplot, listplot3d, loglogplot, logplot, matrixplot, multiple,$
$\quad odeplot, pareto, plotcompare, pointplot, pointplot3d, polarplot, polygonplot, polygonplot3d,$
$\quad polyhedra\_supported, polyhedraplot, rootlocus, semilogplot, setcolors, setoptions,$
$\quad setoptions3d, spacecurve, sparsematrixplot, surfdata, textplot, textplot3d, tubeplot]$
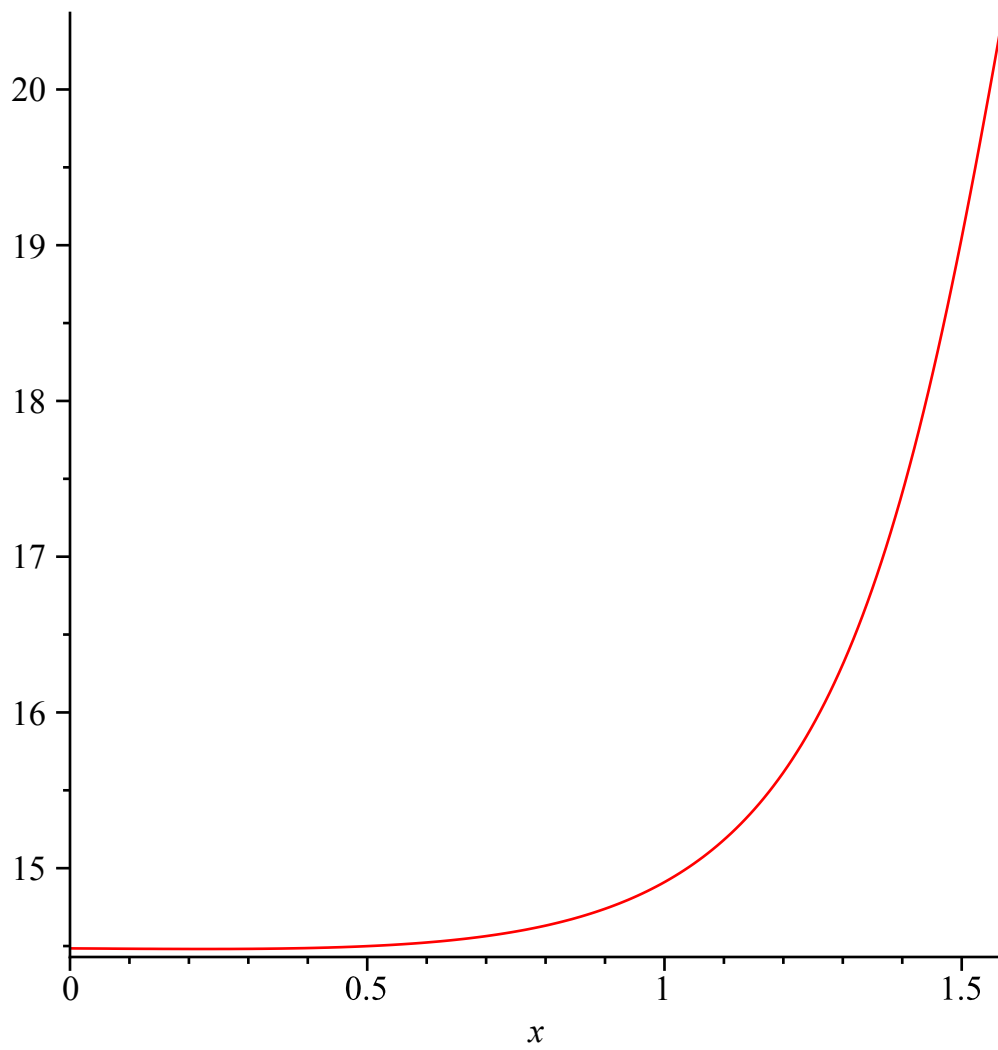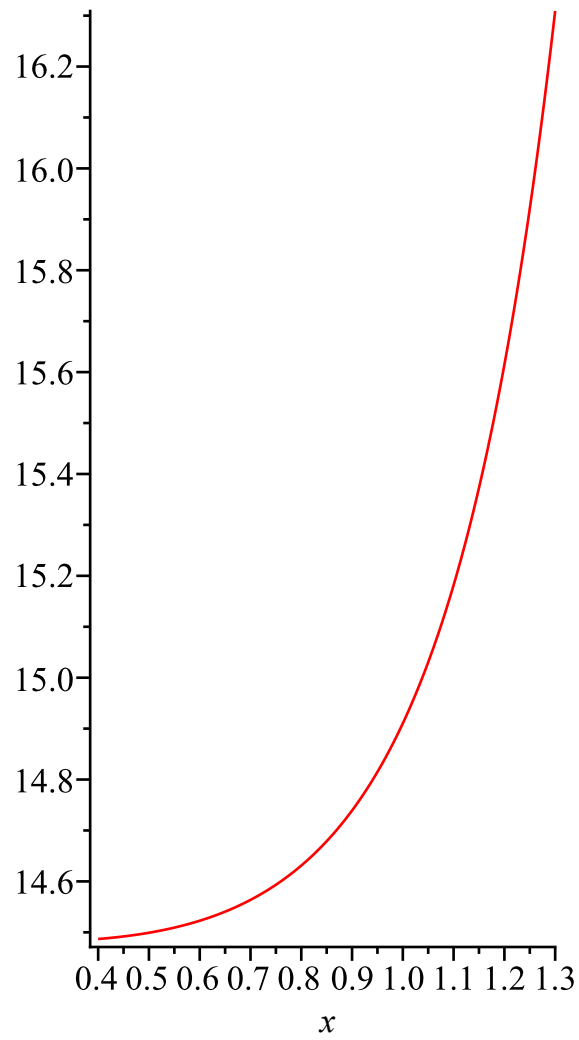
> $plot(f(x), x = 0..1.57);$
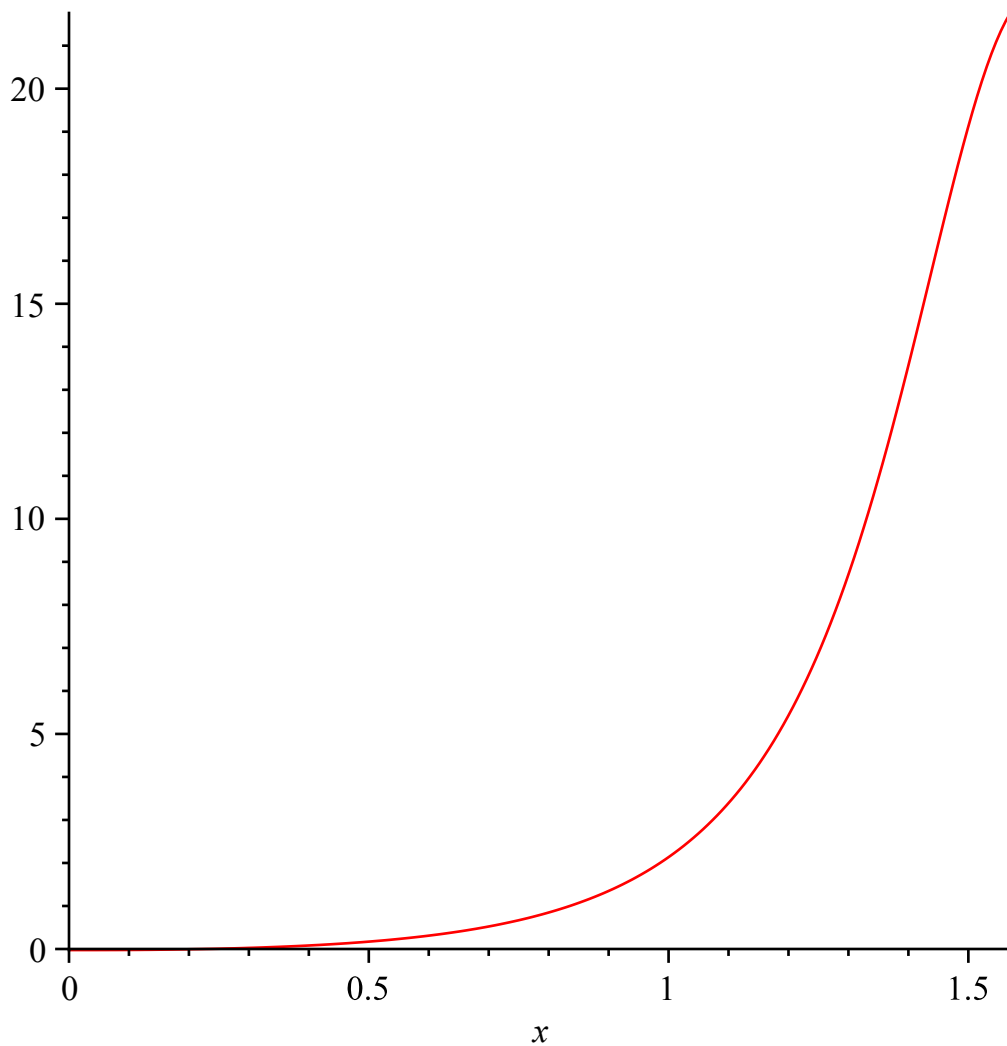
> $g := int(f(x), x)$

$g := -1. \ln\left(\tan(0.5000000000\, x)^2 + 1.\right) + \ln\left(7.313136091\ 10^9 \tan(0.5000000000\, x)^2\right.$

$\left. + 7.313136091\ 10^9 - 1.399990203\ 10^{10} \tan(0.5000000000\, x)\right)$

$+ 6.442783169 \arctan(3.454112424 \tan(0.5000000000\, x) - 3.306190049)$

(8)

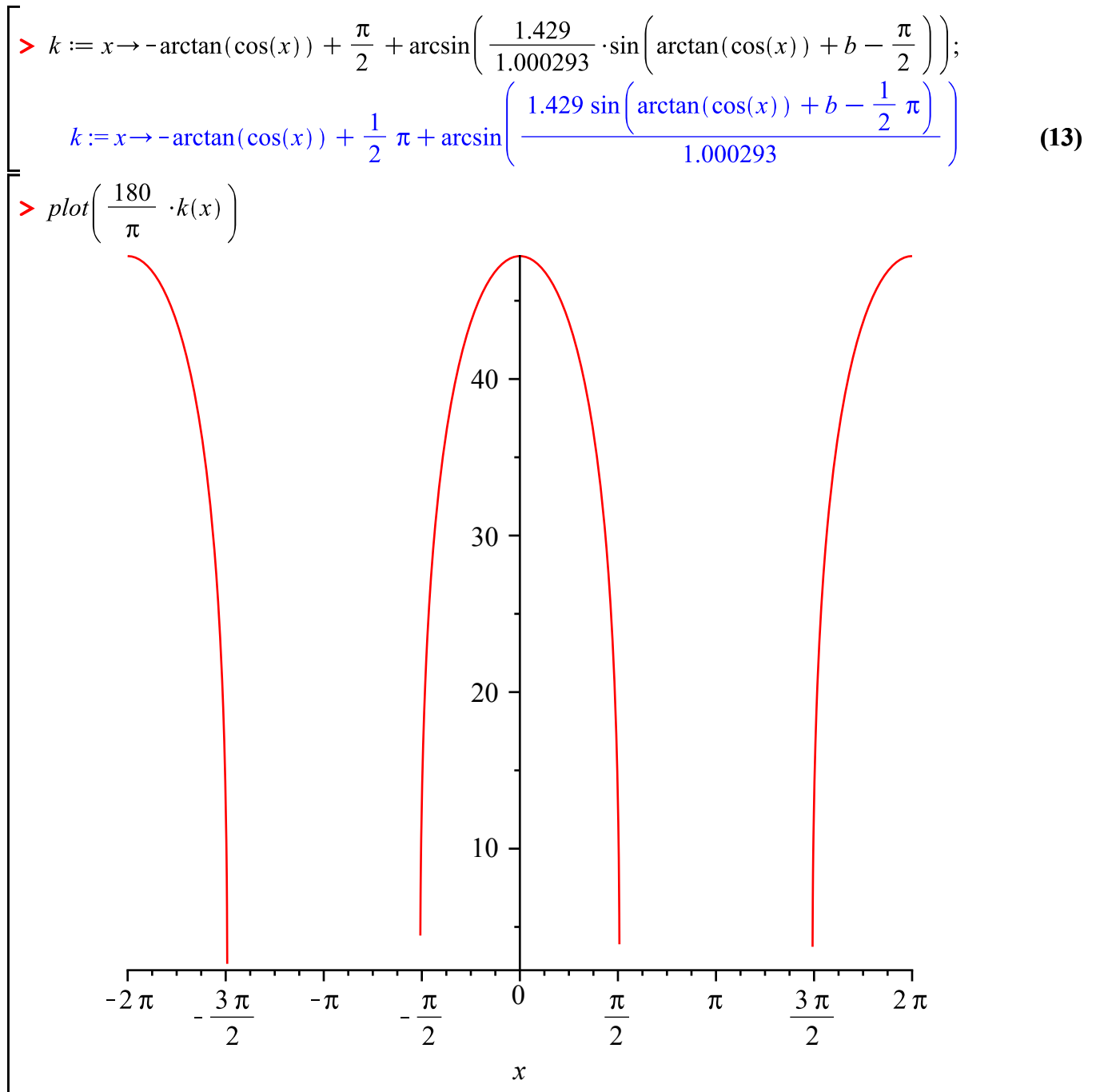> $plot(g(x), x = 0 .. 1.57);$

> $plot(g(x), x = 0.4..1.3)$

> $\arctan(f(b))$

$$0.7505503634 \qquad \textbf{(9)}$$

> $evalf\left(\dfrac{180}{\pi} \cdot \arctan(f(b))\right);$

$$43.00336812 \qquad \textbf{(10)}$$

> $evalf\left(\dfrac{180}{\pi} \cdot b\right)$

$$46.99663185 \qquad \textbf{(11)}$$

> $90 - evalf\left(\dfrac{180}{\pi} \cdot b\right)$

$$43.00336815 \qquad \textbf{(12)}$$

Try with sin(x)

> $k := x \rightarrow -\arctan(\cos(x)) + \dfrac{\pi}{2} + \arcsin\left(\dfrac{1.429}{1.000293} \cdot \sin\left(\arctan(\cos(x)) + b - \dfrac{\pi}{2}\right)\right);$

$$k := x \rightarrow -\arctan(\cos(x)) + \dfrac{1}{2}\pi + \arcsin\left(\dfrac{1.429\sin\left(\arctan(\cos(x)) + b - \dfrac{1}{2}\pi\right)}{1.000293}\right) \tag{13}$$

> $plot\left(\dfrac{180}{\pi} \cdot k(x)\right)$

try Sin as a mold

> $plot\left(\left(\sin\left(x - \dfrac{\pi}{2}\right) + 1\right), x = 0 .. \pi\right)$
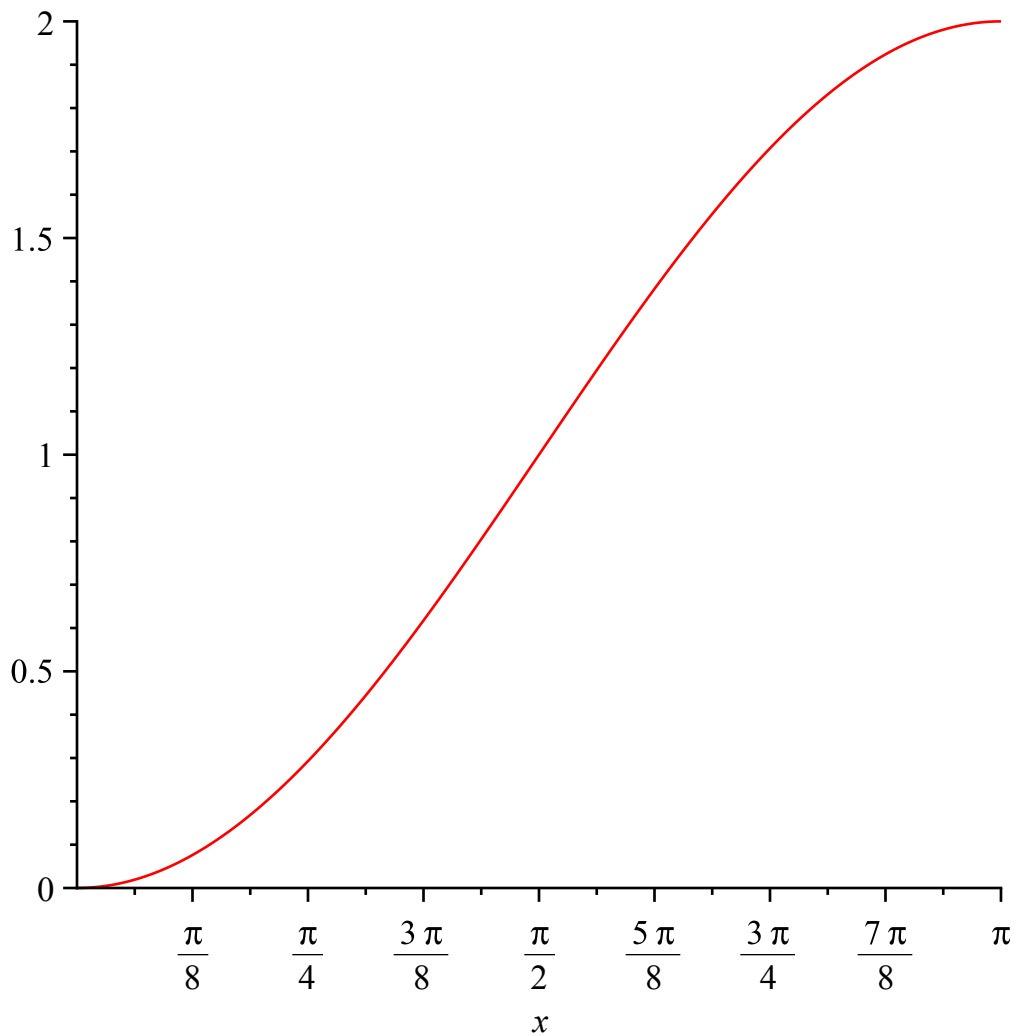
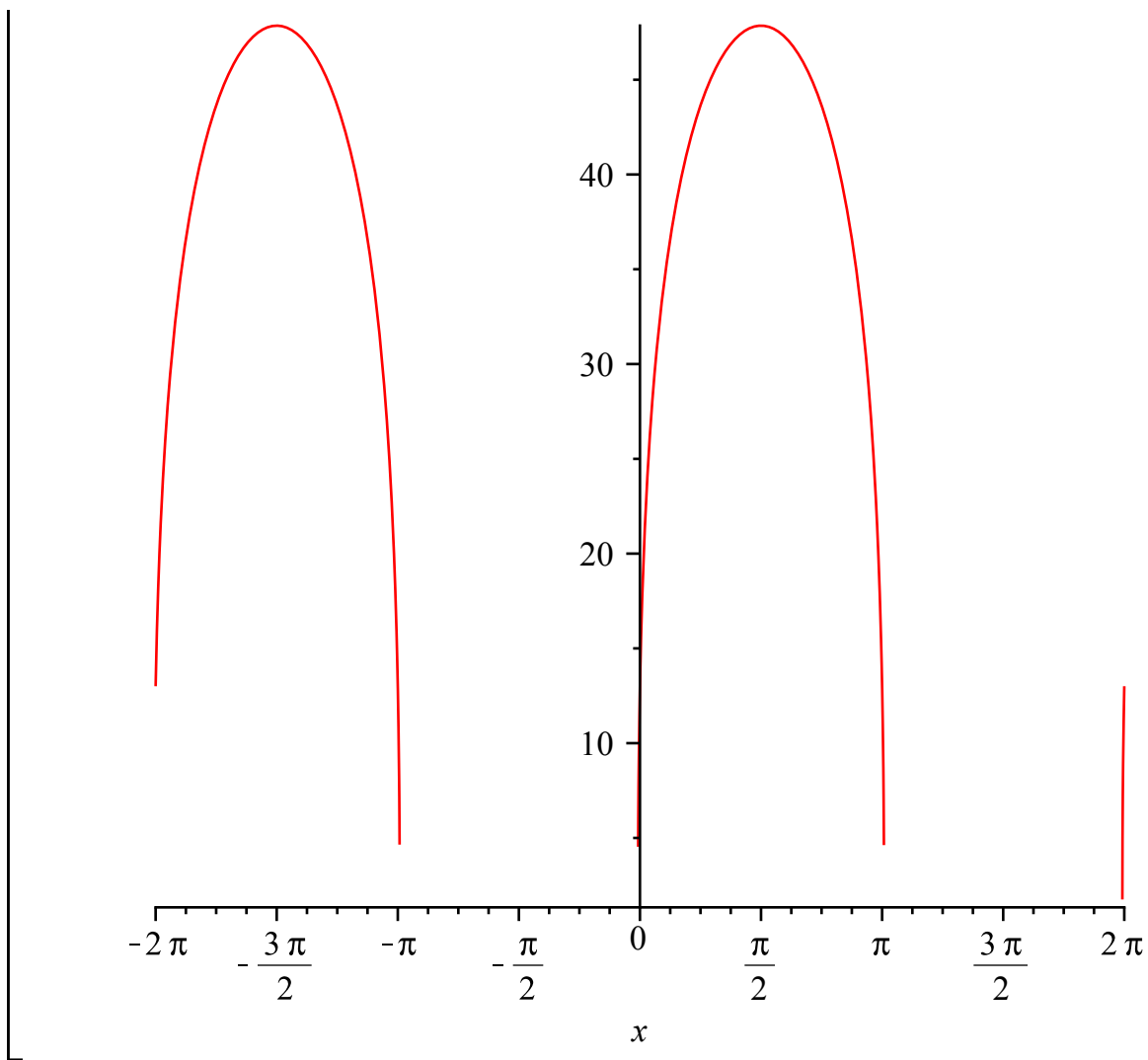> $\dfrac{d}{dx}\left(\sin\left(x - \dfrac{\pi}{2}\right) + 1\right)$

$$\sin(x) \tag{14}$$

> $m := x \rightarrow -\arctan(\sin(x)) + \dfrac{\pi}{2} + \arcsin\left(\dfrac{1.429}{1.000293} \cdot \sin\left(\arctan(\sin(x)) + b - \dfrac{\pi}{2}\right)\right);$

$$m := x \rightarrow -\arctan(\sin(x)) + \dfrac{1}{2}\pi + \arcsin\left(\dfrac{1.429\sin\left(\arctan(\sin(x)) + b - \dfrac{1}{2}\pi\right)}{1.000293}\right) \tag{15}$$
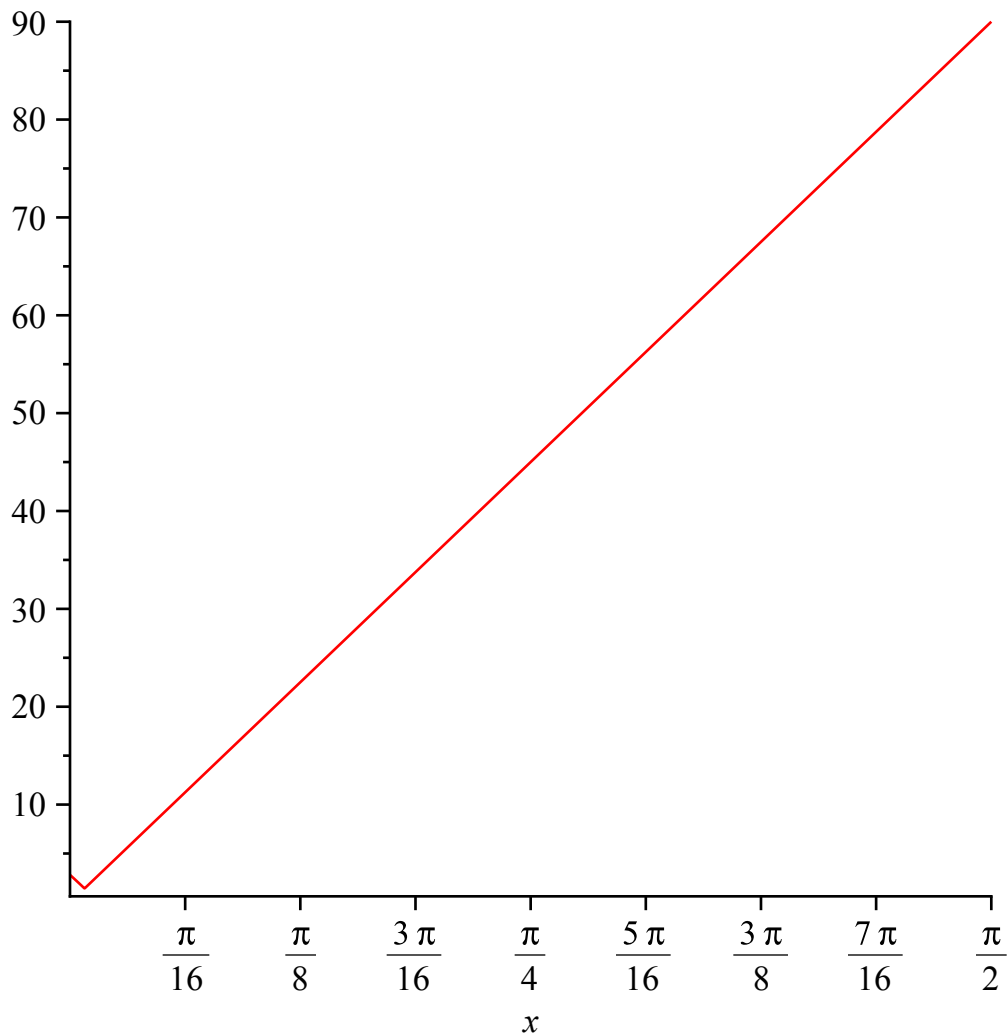
> $plot\left(\dfrac{180}{\pi} \cdot m(x)\right)$

Try with f(x)

> $h := x \rightarrow -\arctan(f(x)) + \dfrac{\pi}{2} + \arcsin\left(\dfrac{1.429}{1.000293} \cdot \sin\left(\arctan(f(x)) + b - \dfrac{\pi}{2} \right) \right);$

$$h := x \rightarrow -\arctan(f(x)) + \frac{1}{2}\pi + \arcsin\left(\frac{1.429 \sin\left(\arctan(f(x)) + b - \dfrac{1}{2}\pi \right)}{1.000293} \right) \tag{16}$$

> $plot\left(\dfrac{180}{\pi} \cdot h(x), x = 0 .. \dfrac{\pi}{2} \right)$
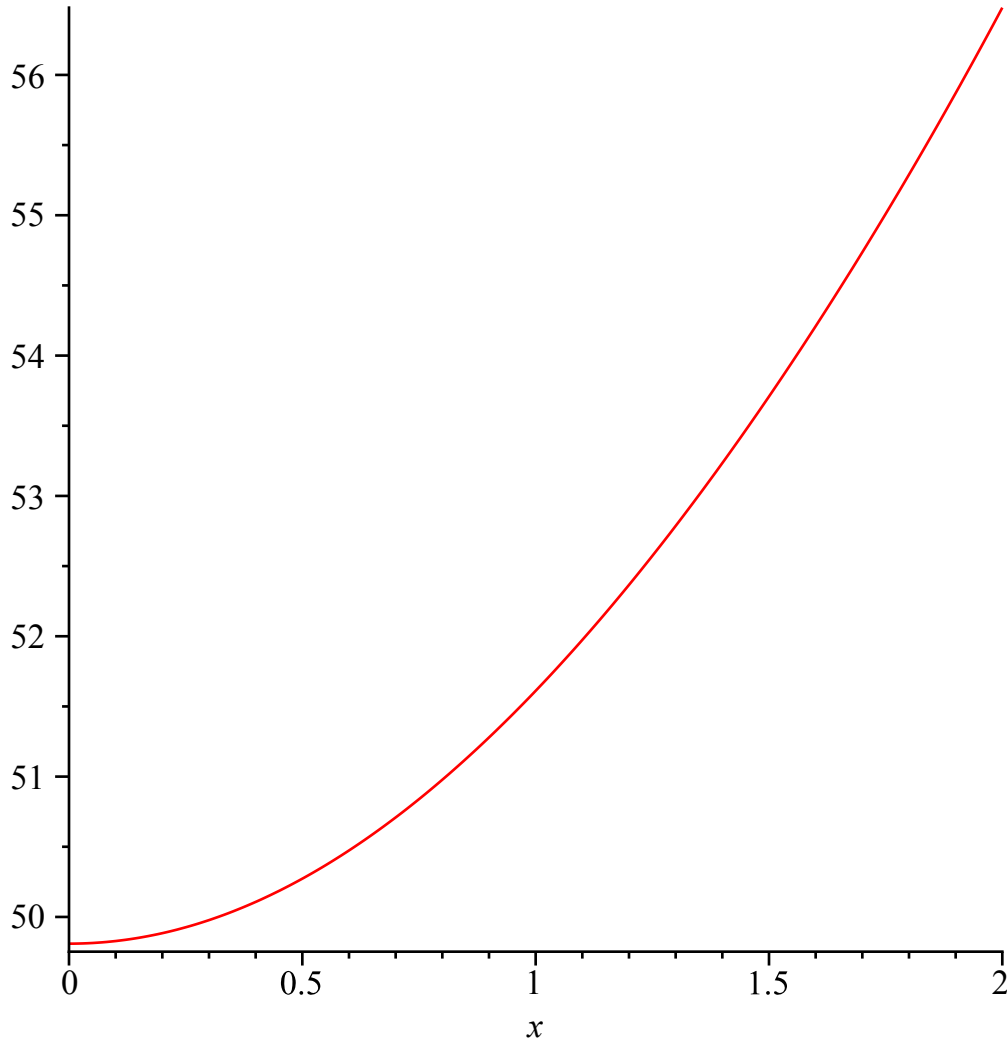
> $evalf(\max(h(x)))$

$$-1.\arctan\left(\frac{0.6820413515 - 0.6999951015\cos(x)}{0.7313136091 - 0.6999951015\sin(x)}\right) + 1.570796327$$ (17)

$$- 1.\arcsin\left(1.428581426\cos\left(\arctan\left(\frac{0.6820413515 - 0.6999951015\cos(x)}{0.7313136091 - 0.6999951015\sin(x)}\right)\right.\right.$$

$$\left.\left. + 0.8202459635\right)\right)$$

Try with a semi-circle :equation is $\sqrt{r^2 - x^2} + r$
where r is the radius of curvature

> $L := x \rightarrow -\arctan\left(-\sqrt{4 - x^2} + 2\right) + \dfrac{\pi}{2} + \arcsin\left(\dfrac{1.429}{1.000293}\cdot\sin\left(\arctan\left(-\sqrt{4 - x^2} + 2\right) + b\right.\right.$

$$\left.\left. - \dfrac{\pi}{2}\right)\right);$$

$$L := x \rightarrow -\arctan\left(-\sqrt{8 - x^2} + 4\right) + \dfrac{1}{2}\pi$$ (18)

$$+ \arcsin\left(\frac{1.429 \sin\left(\arctan\left(-\sqrt{8-x^2} + 4 \right) + b - \frac{1}{2}\pi \right)}{1.000293} \right)$$

> $plot\left(\dfrac{180}{\pi} \cdot L(x),\, x = 0\,..2 \right)$

> $evalf\left(\dfrac{180}{\pi} \cdot (L(2)) \right)$

$$56.47918075 \tag{19}$$

Try with arbitrary parameter r:

> $T := (x, r) \rightarrow -\arctan\left(-\sqrt{r^2 - x^2} + r \right) + \dfrac{\pi}{2} + \arcsin\left(\dfrac{1.429}{1.000293} \cdot \sin\left(\arctan\left(-\sqrt{r^2 - x^2} + r \right) \right. \right.$

$\left. \left. + b - \dfrac{\pi}{2} \right) \right);$

$$T := (x, r) \rightarrow -\arctan\left(-\sqrt{r^2 - x^2} + r \right) + \frac{1}{2}\pi \tag{20}$$

$$+ \arcsin\left(\frac{1.429 \sin\left(\arctan\left(-\sqrt{r^2 - x^2} + r\right) + b - \frac{1}{2}\pi\right)}{1.000293}\right)$$

> $plot3d\left(\dfrac{180}{\pi} \cdot T(x, r), x = 0 .. r, r = 0 .. 10\right)$