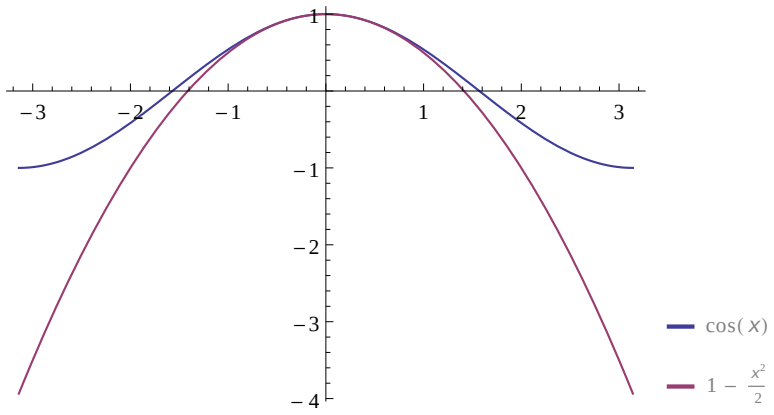
WolframAlpha computational knowledge engine

plot cos(x), 1–x^ 2/2, x=–pi..pi

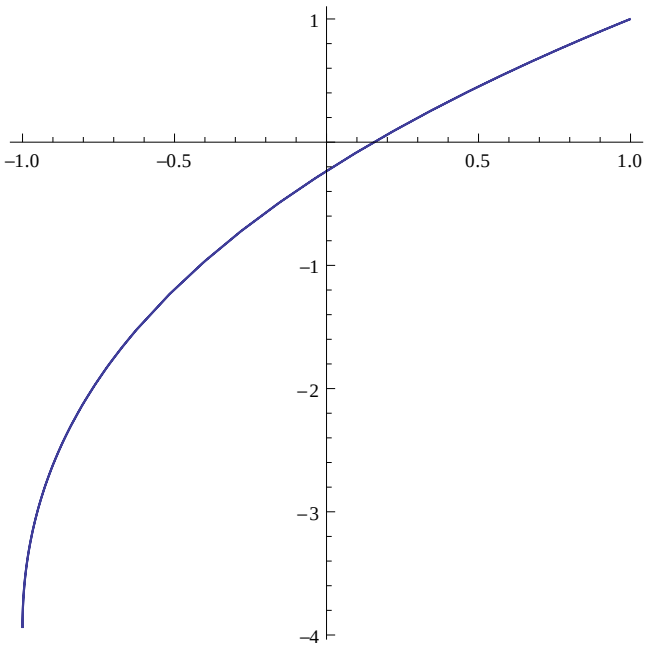
Input interpretation:

plot $\cos(x)$, $1 - \frac{x^2}{2}$, $x = -\pi$ to π

Plot:



Parametric plot:



(x from $-\pi$ to π)

WolframAlpha computational knowledge engine

max cos(x)–(1–x^ 2/2), when –pi<=x<=pi

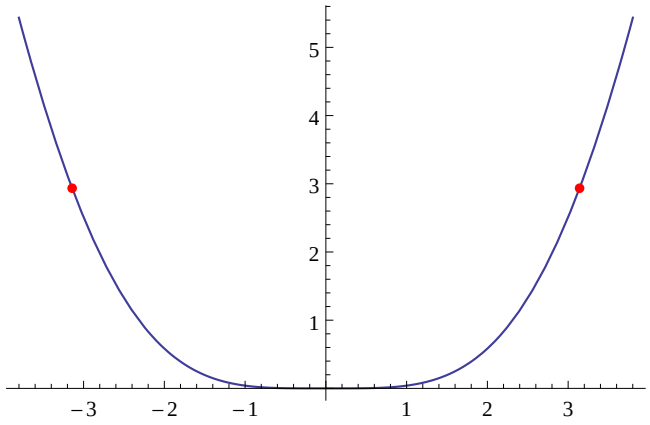
Input interpretation:

maximize	function	$\cos(x) - \left(1 - \frac{x^2}{2}\right)$
	domain	$-\pi \le x \le \pi$

Global maxima:

$$\max\left\{\cos(x) - \left(1 - \frac{x^2}{2}\right) \middle| -\pi \le x \le \pi\right\} = \frac{1}{2}(\pi^2 - 4) \text{ at } x = -\pi$$

Plot:



(x from -4 to 4)

max cos(x)-(1-x^2/2), when -pi<=x<=pi

Examples Random

Input interpretation:

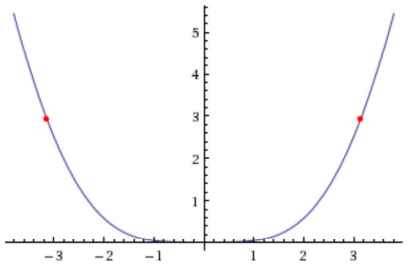
maximize	function	$\cos(x) - \left(1 - \frac{x^2}{2}\right)$
	domain	$-\pi \le x \le \pi$

Global maxima: Approximate form

$$\max\left\{\cos(x) - \left(1 - \frac{x^2}{2}\right) \middle| -\pi \le x \le \pi\right\} = \frac{1}{2}\left(\pi^2 - 4\right) \text{ at } x = -\pi$$

$$\max\left\{\cos(x) - \left(1 - \frac{x^2}{2}\right) \middle| -\pi \le x \le \pi\right\} = \frac{1}{2}\left(\pi^2 - 4\right) \text{ at } x = \pi$$

Plot:



(x from −4 to 4)

Computed by Wolfram *Mathematica*

Related Wolfram|Alpha Queries

- cos(x)-(1-x^2/2) vs d (cos(x...
- plot cos(x)-(1-x^2/2)
- series of cos(x)-(1-x^2/2)wr...

Related Links

- Cos (in *Mathematica*) »
- Maximize (in *Mathematica*) »

Give us your feedback: send

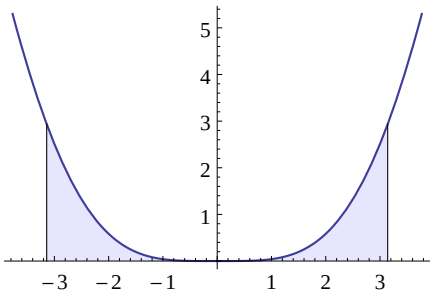
WolframAlpha computational knowledge engine

int cos(x)−(1−x^ 2/2),x=−pi..pi

Definite integral:

$$\int_{-\pi}^{\pi}\left(\cos(x)-\left(1-\frac{x^2}{2}\right)\right)dx=\frac{1}{3}\pi(\pi^2-6)\approx 4.05224$$

Visual representation of the integral:



Riemann sums:

left sum	$\frac{1}{3}\pi\left(\pi^2\left(\frac{2}{n^2}+1\right)-6\right)=\left(\frac{\pi^3}{3}-2\pi\right)+\frac{2\pi^3}{3n^2}+O\left(\left(\frac{1}{n}\right)^4\right)$

(assuming n subintervals of equal length)