```
> restart;
> L:=int(sqrt(1+cos(t)^2),t=0..Pi);
```

$$L := 2\sqrt{2}\ \text{EllipticE}\left(\frac{1}{2}\sqrt{2}\right) \tag{1}$$

```
> evalf(L);
```

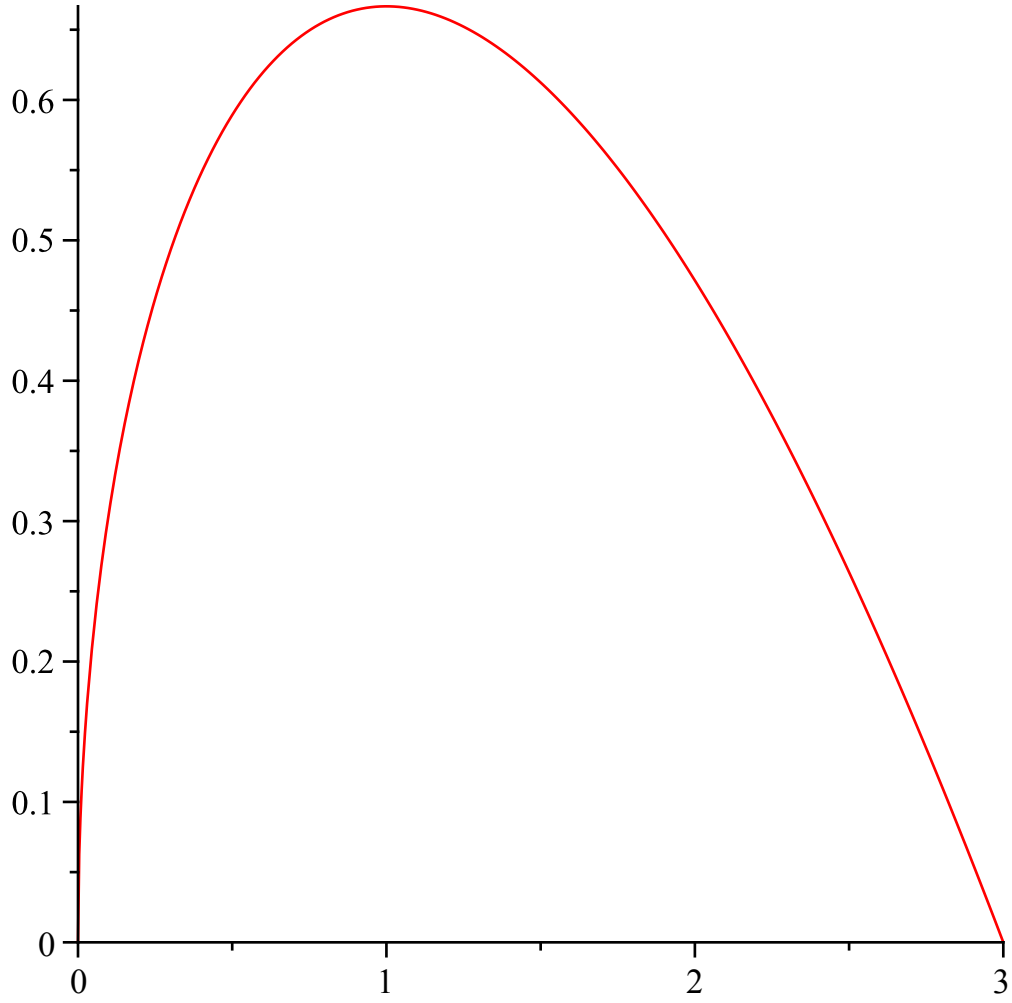
$$3.820197788 \tag{2}$$

```
> f:=t;
  g:=(1/3)*sqrt(t)*(3-t);
```

$$f := t$$

$$g := \frac{1}{3}\sqrt{t}\ (3-t) \tag{3}$$

```
> plot([f,g,t=0..3]);
```




```
> df:=diff(f,t);
  dg:=diff(g,t);
```

$$df := 1$$

$$dg := \frac{1}{6}\,\frac{3-t}{\sqrt{t}} - \frac{1}{3}\sqrt{t} \tag{4}$$

```
> expand(dg);
```

(5)

$$\frac{1}{2\sqrt{t}} - \frac{1}{2}\sqrt{t} \tag{5}$$

>