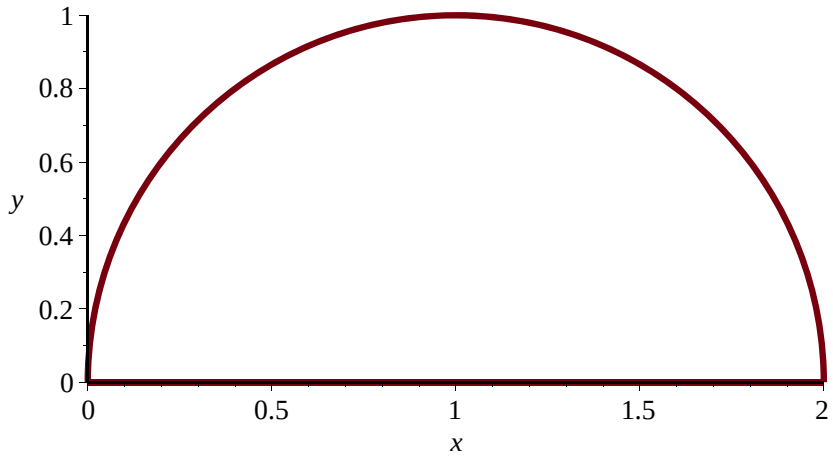
```
> with(Student[VectorCalculus]):
> M := (x, y) → (x - 1)/(4 + x^2 + y^2):
> N := (x, y) → y/(4 + x^2 + y^2):
> KurveEn := LineInt(VectorField(⟨M(x, y), N(x, y)⟩), Path(⟨1 + cos(t), sin(t)⟩, t = 0..Pi)):
> KurveTo := LineInt(VectorField(⟨M(x, y), N(x, y)⟩), Line(⟨0, 0⟩, ⟨2, 0⟩)):
> KurveEn + KurveTo
```

$$\frac{1}{2}\ln(2) - \frac{1}{8}\pi \tag{1}$$

```
> -1/2·(1)
```

$$-\frac{1}{4}\ln(2) + \frac{1}{16}\pi \tag{2}$$

```
> with(plots):
> P1 := plot([1 + cos(t), sin(t), t = 0..Pi], thickness = 3):
> P2 := plot([t, 0, t = 0..2], thickness = 3):
> display(P1, P2, view = [0..2, 0..1], scaling = constrained, labels = [x, y]);
```



```
> with(Student[MultivariateCalculus]):
> MultiInt( r·sin(theta)/(4+r^2)^2, r=0..2·cos(theta), theta=0..Pi/2, coordinates=polar[r, theta], output
    =steps )
```

$$\int_0^{\frac{\pi}{2}} \int_0^{2\cos(\theta)} \frac{r^2 \sin(\theta)}{(4+r^2)^2}\, dr\, d\theta$$

$$= \int_0^{\frac{\pi}{2}} \left(\left(-\frac{\sin(\theta)\, r}{2\,(4+r^2)} + \frac{\sin(\theta)\, \arctan\left(\frac{r}{2}\right)}{4} \right) \Bigg|_{r=0..2\cos(\theta)} \right) d\theta$$

$$= \int_0^{\frac{\pi}{2}} \frac{\left(-\cos(\theta) + \arctan(\cos(\theta)) + \arctan(\cos(\theta))\, \cos(\theta)^2\right) \sin(\theta)}{4\left(\cos(\theta)^2+1\right)}\, d\theta$$

$$= \left(-\frac{\cos(\theta)\, \arctan(\cos(\theta))}{4} + \frac{\ln\left(\cos(\theta)^2+1\right)}{4} \right) \Bigg|_{\theta=0..\frac{\pi}{2}}$$

$$-\frac{1}{4}\ln(2) + \frac{1}{16}\pi \qquad \textbf{(3)}$$

```
>
```