

Radius as function of y:

```
> r:=y-> R[1]+(R[2]-R[1])*y/L;
```

$$r := y \rightarrow R_1 + \frac{(R_2 - R_1)y}{L}$$

Area and supported weight as functions of y:

```
> A:=y-> Pi*r(y)^2;
```

$$A := y \rightarrow \pi r(y)^2$$

```
> W:=y-> gamma*int(A(xi),xi=0..y);
```

$$W := y \rightarrow \gamma \int_0^y A(\xi) d\xi$$

Total deformation:

```
> delta:=int(W(y)/(A(y)*E),y=0..L);
```

$$\delta := \frac{1}{6} \frac{(2R_1 + R_2)L^2 \gamma}{ER_2}$$