

Using Maple to plot singularity functions

Define singularity function "sfn" using Heaviside function

```
> sfn := proc(x,a,n) (x-a)^n * Heaviside(x-a) end;
```

```
      sfn := proc(x, a, n) (x - a)^n*Heaviside(x - a) end
```

Example: bending moment in three-point bending

```
> M:= (x)-> (P/2)*sfn(x,0,1) - P*sfn(x,L/2,1);
```

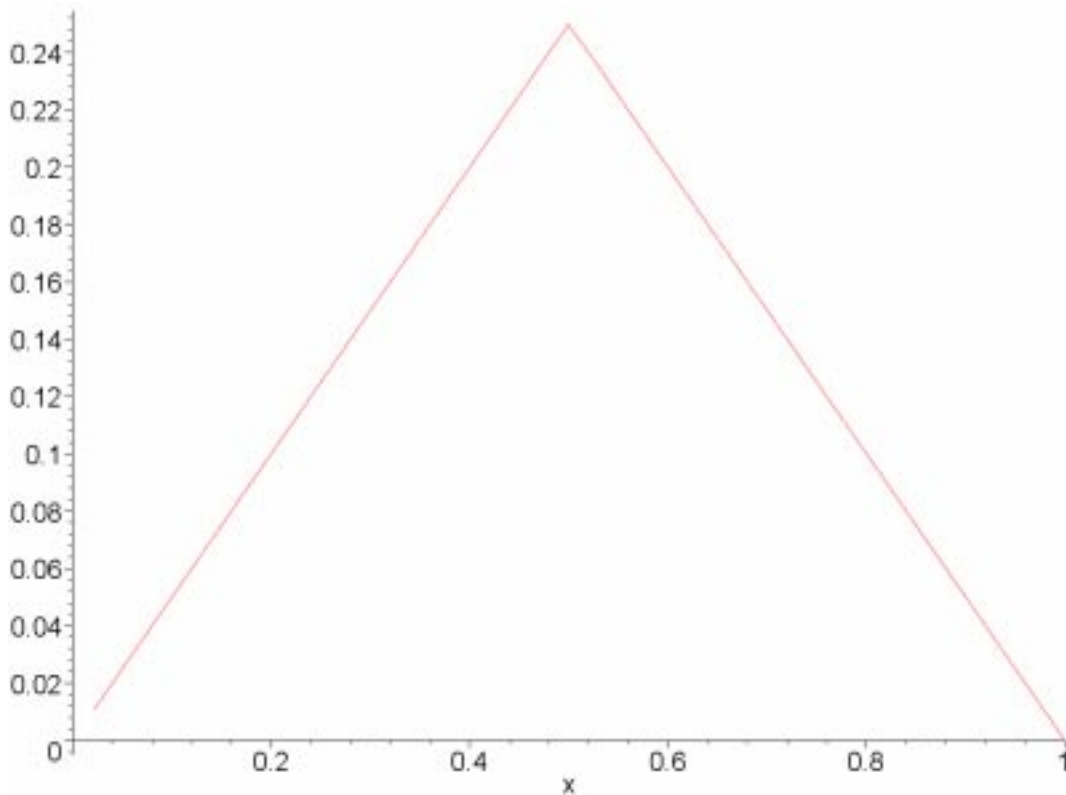
$$M := x \rightarrow \frac{1}{2} P \operatorname{sfn}(x, 0, 1) - P \operatorname{sfn}\left(x, \frac{1}{2} L, 1\right)$$

Define numerical parameters for plotting purposes

```
> Digits:=4:P:=1:L:=1:
```

Construct plot

```
> plot(M(x),x=0..L);
```



```
>
```

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3.11 Mechanics of Materials

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