Example 4.9 - Statically indeterminate beam

Define singularity function

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

Enter displacement function (developed manually by multiple integration)

```maple
> y := (x) ->
    (Ra/6)*sfn(x,0,3)+(Rb/6)*sfn(x,7.5,3)+(Rc/6)*sfn(x,15,3)-(10/24)*s
    fn(x,0,4)+c1*x+c2;
```

Define constraints

Vertical equilibrium:

```maple
> eq1 := 0=Ra+Rb+Rc-(10*15);
```

Moment equilibrium

```maple
> eq2 := 0=(10*15*7.5)-Rb*7.5-Rc*15;
```

Zero displacement at three constraints:

```maple
> eq3 := y(0)=0;
> eq4 := y(7.5)=0;
> eq5 := y(15)=0;
```

Solve constraint equations for unknown parameters:

```maple
> solve({eq1,eq2,eq3,eq4,eq5},{Ra,Rb,Rc,c1,c2});
```

```maple
{ c2 = 0, Ra = 28.12500000, c1 = -87.89062500, Rb = 93.75000000, Rc = 28.12500000 }
```

Assign solution to parameters:

```maple
> assign(%);
```

Plot deflection function:

```maple
> plot(y(x),x=0..15);
```
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