

```
> int(1/sqrt(2*G*M/(y+R)+c),y);
```

$$-\frac{1}{\sqrt{(y+R)(2GM+cR+cy)}c^{3/2}}\left(\sqrt{\frac{2GM+cR+cy}{y+R}}(y+R)\left(GM\ln\left(\frac{GM+\sqrt{(y+R)(2GM+cR+cy)}\sqrt{c}+cR+cy}{\sqrt{c}}\right)-\sqrt{(y+R)(2GM+cR+cy)}\sqrt{c}\right)\right)$$

(1)

```
> f := (x,y) -> 3-2*x-y/2;
```

$$f := (x, y) \mapsto 3 - 2x - \frac{y}{2}$$

(2)

```
> A := 0.; B := 1.; #COMMENT: Decimal points induce MAPLE to use
floating point numbers instead of exact numbers!
```

$$A := 0.$$

$$B := 1.$$

(3)

```
> y(0):=1; x(0):=0;
```

$$y(0) := 1$$

$$x(0) := 0$$

(4)

```
> N := 5; h:=(B-A)/N;
```

$$N := 5$$

$$h := 0.2000000000$$

(5)

```
> for n from 0 to N-1 do
  x(n+1):= x(n)+h:
  y(n+1):= y(n)+ h*f(x(n),y(n)):
end do;
```

$$x(1) := 0.2000000000$$

$$y(1) := 1.500000000$$

$$x(2) := 0.4000000000$$

$$y(2) := 1.870000000$$

$$x(3) := 0.6000000000$$

$$y(3) := 2.123000000$$

$$x(4) := 0.8000000000$$

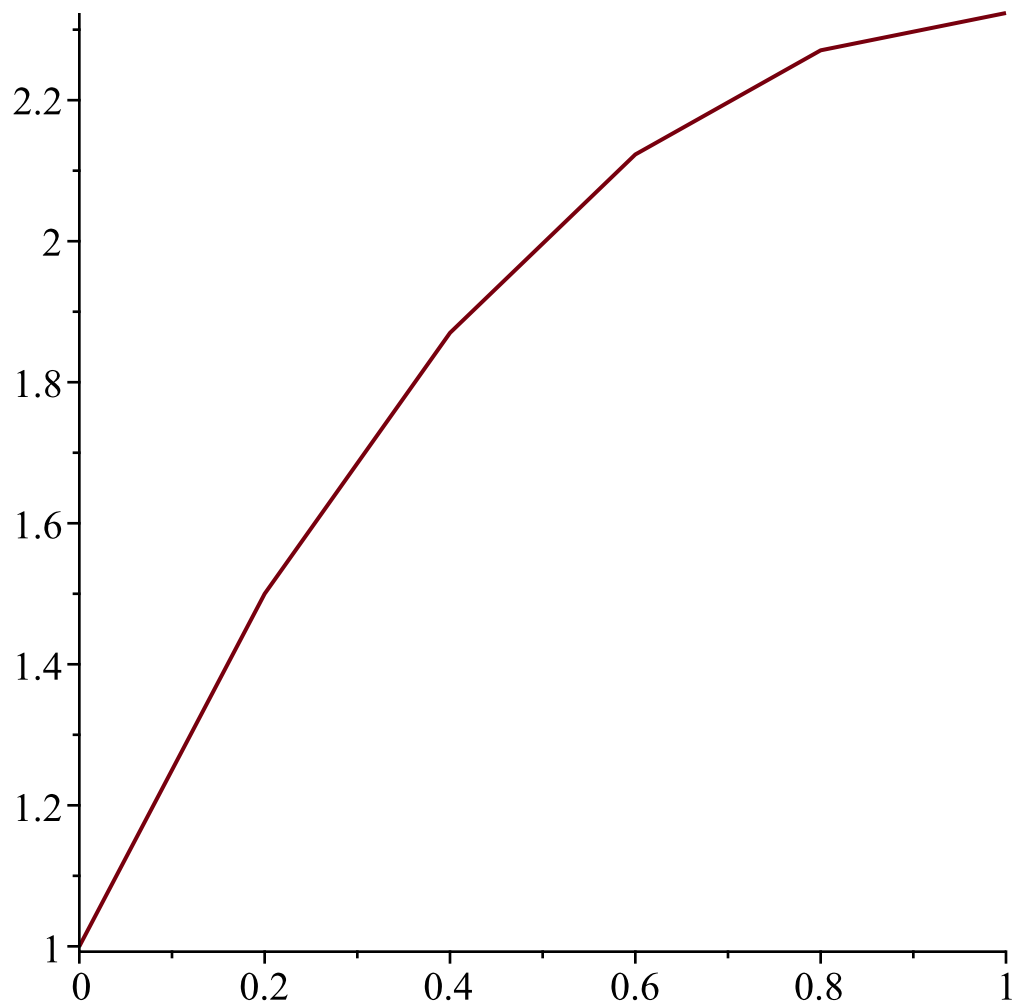
$$y(4) := 2.270700000$$

$$x(5) := 1.000000000$$

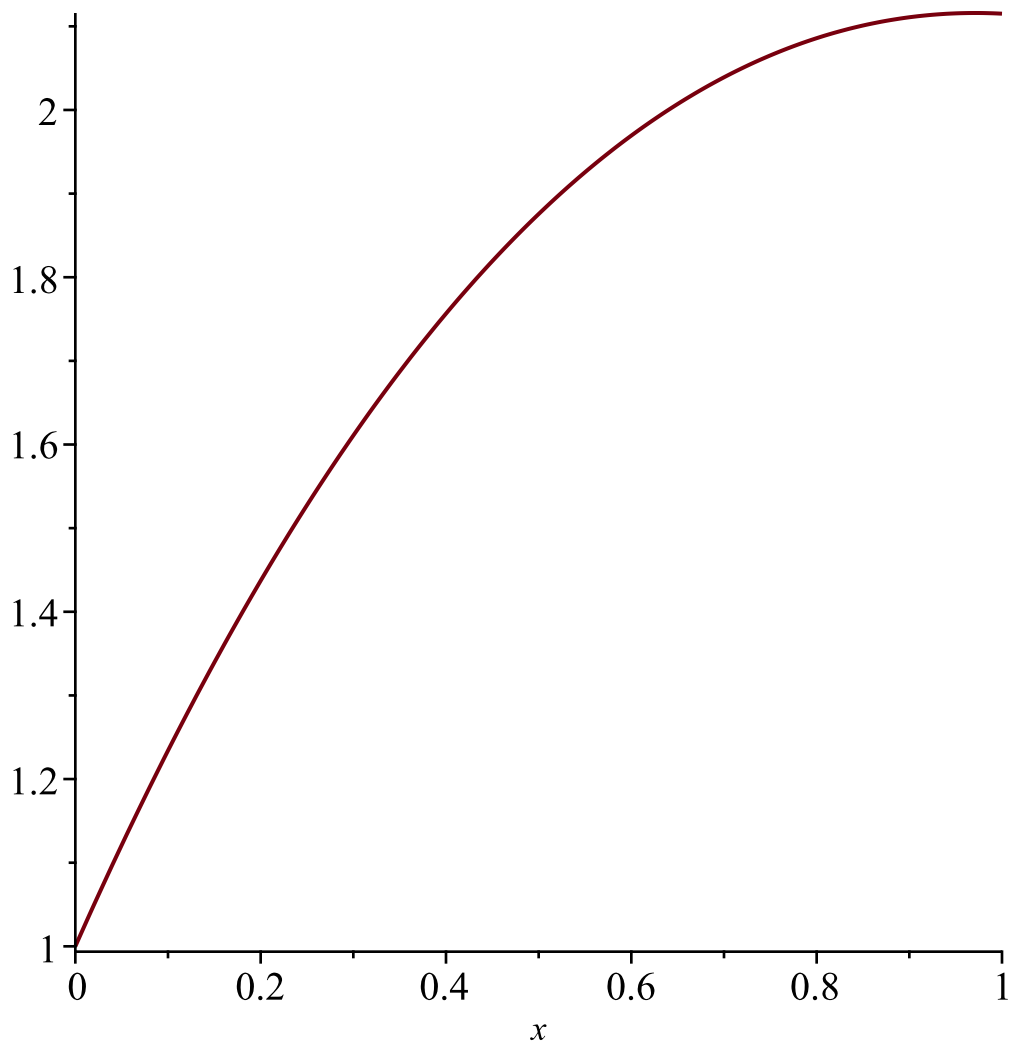
$$y(5) := 2.323630000$$

(6)

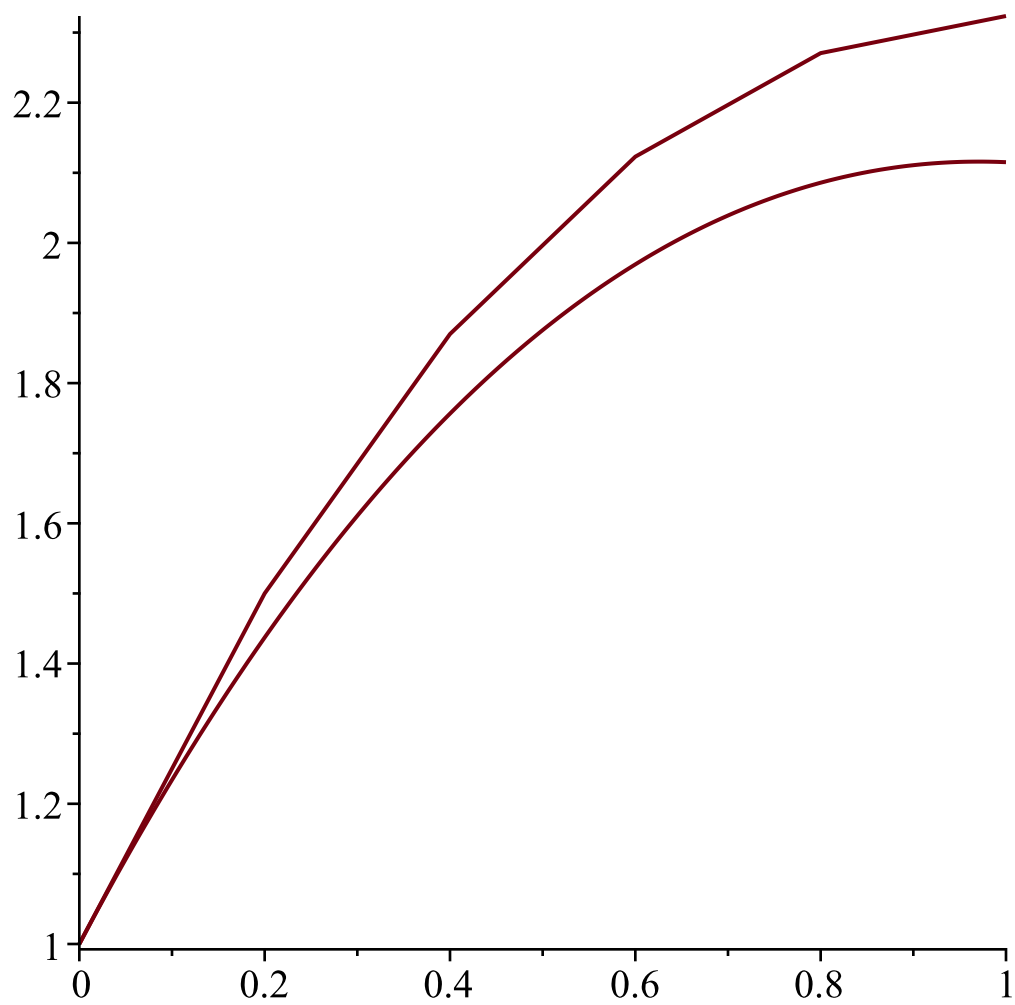
```
> with(plots):
> p1 := plot([seq([x(n),y(n)],n=0..N)]);
```



```
> p2:= plot(14-4*x-13*exp(-x/2),x=0..1);
```



```
=  
> display({p1,p2});
```



```
> plot( {exp(-x)*sin(3*x),exp(-x),-exp(-x)}, x=0..(3/2)*Pi);
```

