```
> with(DETools):
> ode2 := D(y)(x) = y(x) - x
```

$$ode2 := \mathrm{D}(y)(x) = y(x) - x \tag{1}$$

```
> dsolve(ode2, y(x))
```

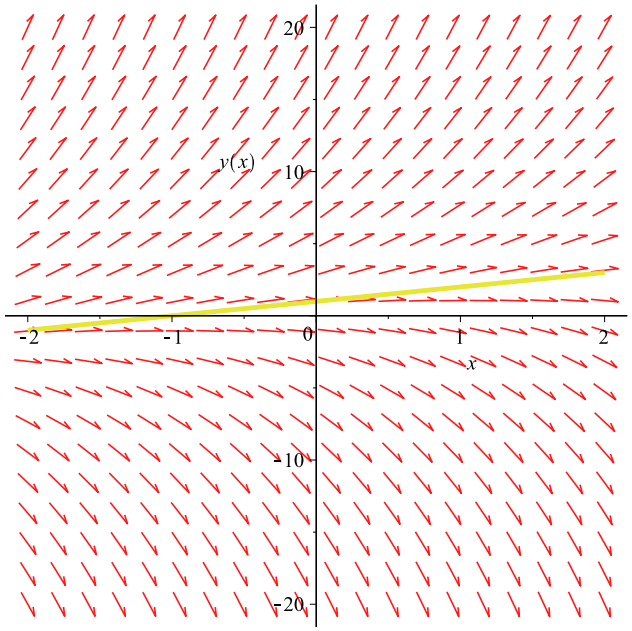
$$y(x) = x + 1 + e^{x}\_C1 \tag{2}$$

```
> dsolve({ode2, y(9/2) = 1}, y(x))
```

$$y(x) = x + 1 - \frac{9}{2}\,\frac{e^{x}}{e^{\frac{9}{2}}} \tag{3}$$

```
> plot(x + 1 - 9/2 * exp(x)/exp(9/2))
```

```
> DEplot(ode2, y(x), x = -2..2, y = -20..20, [[y(2) = 3]])
```




```
>
> ode := 2*x*diff(y(x), x) - 3*y(x) = -(5*x^2 + 3)*y(x)^3
```

$$ode := 2x\left(\frac{d}{dx}y(x)\right) - 3y(x) = -\left(5x^2+3\right)y(x)^3 \quad (4)$$

> $dsolve\left(\left\{ode, y(1) = \frac{1}{\sqrt{2}}\right\}, y(x)\right)$

$$y(x) = \frac{1}{\sqrt{x^2+1}} \quad (5)$$

> $dsolve(ode)$

$$y(x) = \frac{\sqrt{\left(x^5+x^3+\_C1\right)x}\,x}{x^5+x^3+\_C1}, y(x) = -\frac{\sqrt{\left(x^5+x^3+\_C1\right)x}\,x}{x^5+x^3+\_C1} \quad (6)$$

> $ode1 := D(y)(x) = \frac{x \cdot x}{-4 \cdot x}$

$$ode1 := D(y)(x) = -\frac{1}{4}x \quad (7)$$

> $dsolve(ode1)$

$$y(x) = -\frac{1}{8}x^2 + \_C1 \quad (8)$$

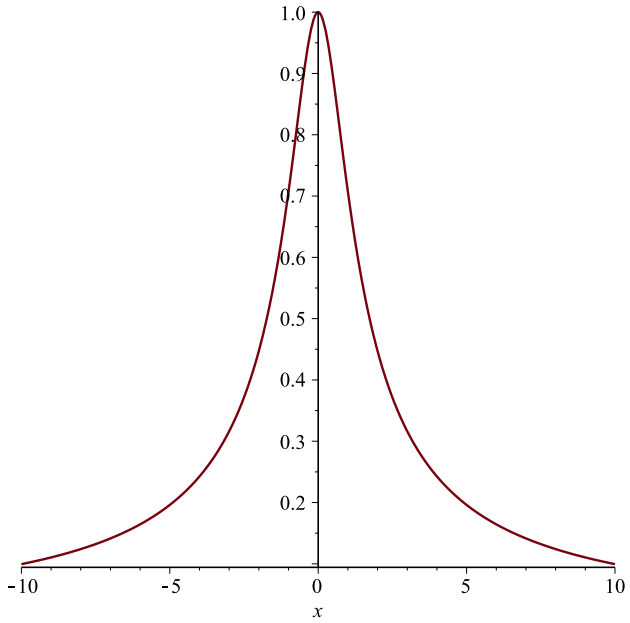
> $DEplot(ode1, [y(x)], x = 0..1, [[y(0) = 1]])$

$$DEplot\left(D(y)(x) = -\frac{1}{4}x, [y(x)], x = 0..1, [[y(0) = 1]]\right) \quad (9)$$

> $f := x \to \frac{1}{\sqrt{x^2+1}}$

$$f := x \to \frac{1}{\sqrt{x^2+1}} \quad (10)$$

> $plot(f(x))$




```
> [DEplot(ode, y(x), x=-5..5, [[y(0)=1]])
```

$$DEplot\left(2\,x\left(\frac{d}{dx}\,y(x)\right)-3\,y(x)=-\left(5\,x^2+3\right)y(x)^3, y(x), x=-5..5, [[y(0)=1]]\right) \quad \textbf{(11)}$$

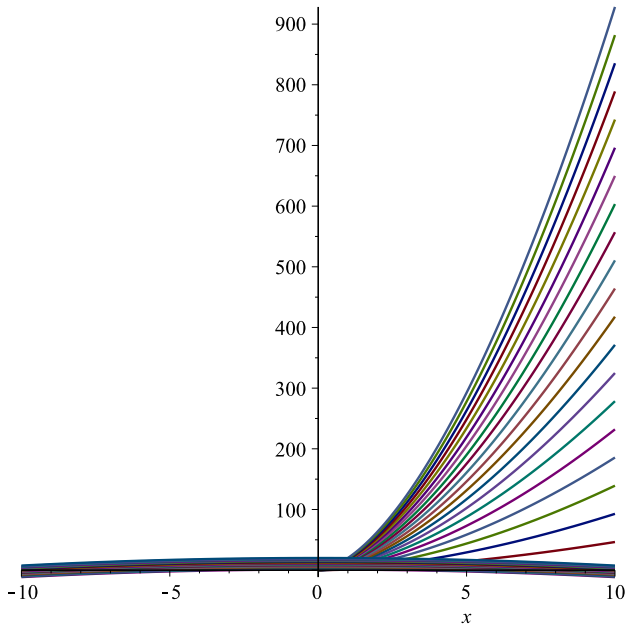
```
> a := [ ]
```

$$a := [\,] \quad \textbf{(12)}$$

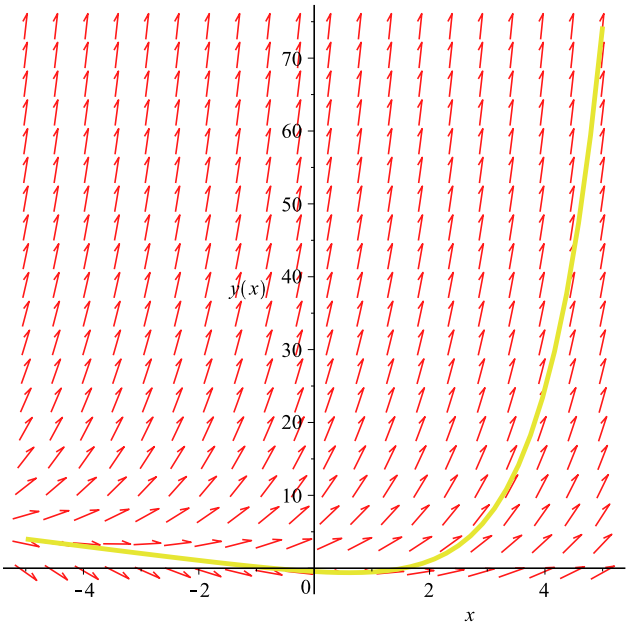
```
> f := (C, x) -> C + -1/8 x^2
```

$$f := (C, x) \to C - \frac{1}{8}\,x^2 \quad \textbf{(13)}$$

```
> for i from 1 to 20 do a := [op(a), f(i, x)] end do
> plot(a(x))
```



> $DEplot(\mathrm{D}(y)(x) = x + y(x), y(x), x = -5..5, [[y(2) = 1]])$


70
60
50
40
30
20
10
y(x)
-4
-2
0
2
4
x