

```

> restart;
> with(DEtools): with(plots):
> DE09:=diff(y(x),x)=(1-2*x)*(y(x))^2;

```

$$DE09 := \frac{d}{dx} y(x) = (1 - 2x) y(x)^2$$

(1)

```

> Y01:=dsolve({DE09,y(0)=-1/6},y(x));

```

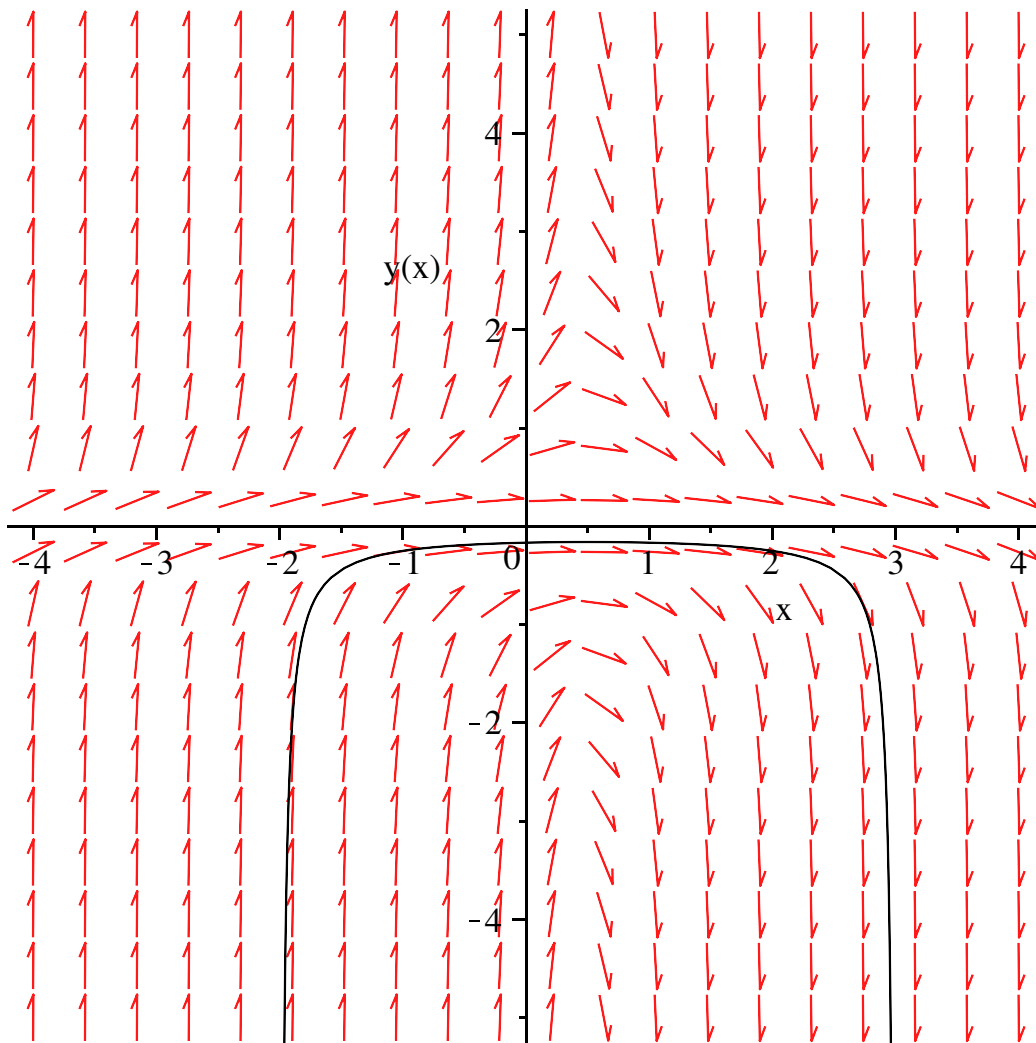
$$Y01 := y(x) = \frac{1}{2300} \frac{-2300x + 2300x^2 + 13800}{x^2 - 2x^3 - 36 + x^4}$$

(2)

```

> A:=DEplot(DE09,y(x),x=-4..4,y=-5..5):
> B:=plot(rhs(Y01),x=-2..3,y=-5..5,color=black):
> display(A,B);

```



```

> DE11:=y(x)*diff(y(x),x)=-x*exp(x):
> Y11:=dsolve({DE11,y(0)=1},y(x));

```

$$Y11 := y(x) = \sqrt{-1 - 2xe^x + 2e^x}$$

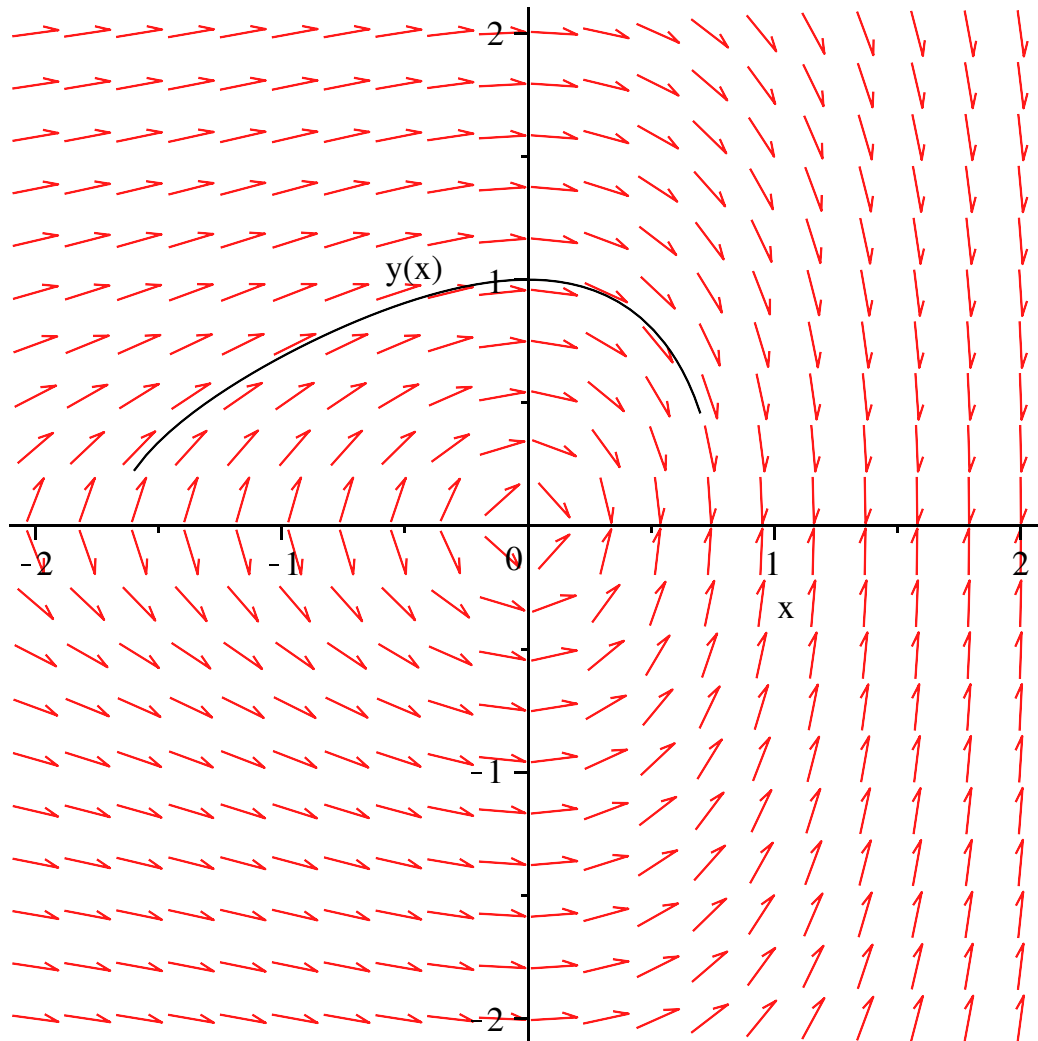
(3)

```

> A:=DEplot(DE11,y(x),x=-2..2,y=-2..2):
> B:=plot(rhs(Y11),x=-1.6..0.7,y=-2..2,color=black):

```

```
> display(A,B);
```



```
> DE16:=diff(y(x),x)=x*(x^2+1)/(4*(y(x))^3):
```

```
> Y16:=dsolve({DE16,y(0)=-1/sqrt(2)},y(x));
```

$$Y16:=y(x)=-\frac{1}{2}\sqrt{2x^2+2}$$

(4)

```
> A:=DEplot(DE16,y(x),x=-4..4,y=-4..4):
```

```
> B:=plot(rhs(Y16),x=-4..4,y=-4..4,color=black):
```

```
> display(A,B);
```

