

```
> restart;
```

## Facitliste 22. kursusgang

Opgave 436

```
> evalc(exp(I*Pi/2));
```

$$I \quad (1)$$

```
> evalc(3*exp(1+I*Pi));
```

$$-3 e \quad (2)$$

```
> evalc((1-exp(I*Pi/2))/(1+exp(I*Pi/2))+exp(I*Pi/4)-exp(-I*Pi/2));
```

$$\frac{1}{2} \sqrt{2} + \frac{1}{2} I \sqrt{2} \quad (3)$$

Opgave 440

```
> combine(simplify(sin(3*x)*cos(5*x)));
```

$$\frac{1}{2} \sin(8x) - \frac{1}{2} \sin(2x) \quad (4)$$

Opgave 108

(Se manualsiderne for dsolve for at forstå hvad der sker nedenfor.)

```
> eq108:=diff(x(t),t)+tan(t)*x(t)=0;
```

$$eq108 := \frac{d}{dt} x(t) + \tan(t) x(t) = 0 \quad (5)$$

```
> dsolve(eq108);
```

$$x(t) = \_C1 \cos(t) \quad (6)$$

Bemærk Maples notation for konstanten i resultatet. Interne variable i Maple starter med understregning.

Opgave 109

```
> eq109:=diff(x(t),t)+x(t)=t;
```

$$eq109 := \frac{d}{dt} x(t) + x(t) = t \quad (7)$$

```
> dsolve(eq109);
```

$$x(t) = -1 + t + e^{-t} \_C1 \quad (8)$$

Opgave 111

```
> eq111:=t*diff(x(t),t)-2*x(t)=t^3;
```

$$eq111 := t \left( \frac{d}{dt} x(t) \right) - 2 x(t) = t^3 \quad (9)$$

```
> assume(t<0);
```

```
> dsolve(eq111);
```

$$x(t\sim) = (t\sim + \_C1) t\sim^2 \quad (10)$$

```
> t:='t';
```

$$t := t \quad (11)$$

### Opgave 113

```
> eq113:=diff(x(t),t)+t^2*x(t)=t^3+1;
```

$$eq113 := \frac{d}{dt} x(t) + t^2 x(t) = t^3 + 1 \quad (12)$$

```
> dsolve(eq113);
```

$$x(t) = t + e^{-\frac{1}{3}t^3} \_C1 \quad (13)$$

```
>
```