```
> x^2*diff(y(x),x$2)+x*diff(y(x),x)+(x^2-1/4)*y(x)-3*x^(3/2)*sin(x);
```

$$x^2\left(\frac{d^2}{dx^2}y(x)\right)+x\left(\frac{d}{dx}y(x)\right)+\left(x^2-\frac{1}{4}\right)y(x)-3\,x^{3/2}\sin(x)$$

```
> dsolve(%);
```

$$y(x)=\frac{\sin(x)\ \_C2}{\sqrt{x}}+\frac{\cos(x)\ \_C1}{\sqrt{x}}+\frac{3}{2}\,\frac{\sin(x)-x\cos(x)}{\sqrt{x}}$$

```
> 3*int(x^2*sin(x)^2,x);
```

$$3\,x^2\left(-\frac{1}{2}\cos(x)\sin(x)+\frac{1}{2}x\right)-\frac{3}{2}x\cos(x)^2+\frac{3}{4}\cos(x)\sin(x)+\frac{3}{4}x-x^3$$

```
> expand(%);
```

$$-\frac{3}{2}x^2\cos(x)\sin(x)+\frac{1}{2}x^3-\frac{3}{2}x\cos(x)^2+\frac{3}{4}\cos(x)\sin(x)+\frac{3}{4}x$$

```
>
> |
```