

PHYS 607: Integrals in Homework Set 2

```
> assume (n::integer,n>=0);  
> Int(exp(-t^2)*t^n,t=-infinity..infinity);
```

$$\int_{-\infty}^{\infty} e^{-t^2} t^{n\sim} dt$$

```
> int(exp(-t^2)*t^n,t=-infinity..infinity);
```

$$\frac{1}{2} \Gamma\left(\frac{n\sim}{2} + \frac{1}{2}\right) (1 + (-1)^{n\sim})$$

```
> f:=n->1/2*GAMMA(1/2*n+1/2)*(1+(-1)^n);
```

```
>
```

$$f := n \rightarrow \frac{1}{2} \Gamma\left(\frac{1}{2}n + \frac{1}{2}\right) (1 + (-1)^n)$$

```
> eval(f(0));
```

$$\sqrt{\pi}$$

```
> eval(f(1));
```

$$0$$

```
> eval(f(2));
```

$$\frac{\sqrt{\pi}}{2}$$

```
> eval(f(3));
```

$$0$$

```
> eval(f(4));
```

$$\frac{3\sqrt{\pi}}{4}$$