

```
[
> restart;
> R:=unapply(exp(-I*k*z)/(4*z^3),z); # make R = exp(-ikz)/(4z^3)
into a function of z
```

$$R := z \rightarrow \frac{1}{4} \frac{e^{(-Ikz)}}{z^3}$$

```
> a:=1/sqrt(2)*(-1-I); b:=1/sqrt(2)*(1 - I);
```

$$a := \left(\frac{-1}{2} - \frac{1}{2} I \right) \sqrt{2}$$

$$b := \left(\frac{1}{2} - \frac{1}{2} I \right) \sqrt{2}$$

```
> ans:=-2*Pi*I*(R(a)+R(b));
```

```
> ans1:=evalc(ans) assuming k>0;
```

$$\begin{aligned} ans1 := & 4 \pi \left(\frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \cos\left(\frac{k\sqrt{2}}{2} \right) + \frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \sin\left(\frac{k\sqrt{2}}{2} \right) \right) \sqrt{2} - 2 I \pi \left(\right. \\ & \left(\frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \cos\left(\frac{k\sqrt{2}}{2} \right) - \frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \sin\left(\frac{k\sqrt{2}}{2} \right) \right) \sqrt{2} \\ & \left. + \left(-\frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \cos\left(\frac{k\sqrt{2}}{2} \right) + \frac{1}{8} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \sin\left(\frac{k\sqrt{2}}{2} \right) \right) \sqrt{2} \right) \end{aligned}$$

```
> Ans:=simplify(ans1);
```

$$Ans := \frac{1}{2} \pi \sqrt{2} e^{\left(-\frac{k\sqrt{2}}{2} \right)} \left(\cos\left(\frac{k\sqrt{2}}{2} \right) + \sin\left(\frac{k\sqrt{2}}{2} \right) \right)$$

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>
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