In[7]:=
```
RealIP[f_, g_] := (1 / Pi) * Integrate[f * g, {x, -Pi, Pi}]
```

In[9]:=
```
RealIP[1, 1]
```

Out[9]= 2

In[11]:=
```
RealIP[Cos[x], Cos[x]]
```

Out[11]= 1

In[12]:=
```
RealIP[Cos[10 * x], Cos[10 * x]]
```

1

In[13]:=
```
RealIP[Cos[x]^2, 1]
```

Out[13]= 1

In[14]:=
```
RealIP[Cos[x]^2, Cos[x]]
```

Out[14]= 0

In[15]:=
```
RealIP[Cos[x]^2, Cos[10 * x]]
```

Out[15]= 0

In[17]:=
```
RealIP[x^3, 1]
```

Out[17]= 0

In[18]:=
```
RealIP[x^3, Cos[x]]
```

Out[18]= 0

In[19]:=
```
RealIP[x^3, Cos[10 * x]]
```

Out[19]= 0

In[20]:=
```
RealIP[Sin[x], 1]
```

Out[20]= 0

In[21]:=
```
RealIP[Sin[x], Cos[x]]
```

Out[21]= 0

In[22]:=
```
RealIP[Sin[x], Cos[10 * x]]
```

Out[22]= 0

In[23]:=
```
RealIP[1 - Cos[2 * x], 1]
```

Out[23]= 2

In[24]:=
```
RealIP[1 - Cos[2 * x], Cos[x]]
```

Out[24]= 0

In[25]:=
```
RealIP[1 - Cos[2 * x], Cos[10 * x]]
```

Out[25]= 0

In[26]:=
```
RealIP[Abs[x], 1]
```

Out[26]= π

In[27]:=
```
RealIP[Abs[x], Cos[x]]
```

Out[27]= $-\frac{4}{\pi}$

In[28]:=
```
RealIP[Abs[x], Cos[10 * x]]
```

Out[28]= 0

In[29]:=
```
RealIP[Abs[Sin[x]], 1]
```

Out[29]= $\frac{4}{\pi}$

In[30]:=
```
RealIP[Abs[Sin[x]], Cos[x]]
```

Out[30]= 0

In[31]:=
```
RealIP[Abs[Sin[x]], Cos[10 * x]]
```

Out[31]= $-\frac{4}{99\,\pi}$