

$$\text{In[1]:= } \mathbf{p} = \frac{1}{\mathbf{x}^6 + 1};$$

$$\text{In[2]:= } \mathbf{Factor[p]}$$

$$\text{Out[2]= } \frac{1}{(1 + \mathbf{x}^2) (1 - \mathbf{x}^2 + \mathbf{x}^4)}$$

$$\text{In[6]:= } \mathbf{Apart[p]}$$

$$\text{Out[6]= } \frac{1}{3 (1 + \mathbf{x}^2)} + \frac{2 - \mathbf{x}^2}{3 (1 - \mathbf{x}^2 + \mathbf{x}^4)}$$

$$\text{In[7]:= } \mathbf{I1} = \frac{1}{3 (1 + \mathbf{x}^2)};$$

$$\mathbf{I2} = \frac{2 - \mathbf{x}^2}{3 (1 - \mathbf{x}^2 + \mathbf{x}^4)};$$

$$\text{In[9]:= } \mathbf{Integrate[I1, x]}$$

$$\text{Out[9]= } \frac{\text{ArcTan}[x]}{3}$$

$$\text{In[10]:= } \mathbf{Integrate[I2, x]}$$

$$\text{Out[10]= } \frac{1}{6 \sqrt{6}} \left( -\sqrt{-1 - \mathbf{i} \sqrt{3}} \left( -3 \mathbf{i} + \sqrt{3} \right) \text{ArcTan}\left[\frac{1}{2} (1 - \mathbf{i} \sqrt{3}) \mathbf{x}\right] - \sqrt{-1 + \mathbf{i} \sqrt{3}} \left( 3 \mathbf{i} + \sqrt{3} \right) \text{ArcTan}\left[\frac{1}{2} (1 + \mathbf{i} \sqrt{3}) \mathbf{x}\right] \right)$$