

$$6 \int \frac{t^6 + t^5}{t^2 + 1} dt$$

$$\begin{array}{r}
 - \frac{t^6 + t^5}{t^6 + t^4} \quad \left| \frac{t^2 + 1}{t^4 + t^3} \right. \\
 \hline
 t^5 - t^4 \\
 t^5 + t^3 \\
 \hline
 -t^4 - t^3 \\
 -t^4 - t^2 \\
 \hline
 -t^3 + t^2 \\
 -t^3 - t \\
 \hline
 t^2 + t \\
 t^2 + 1 \\
 \hline
 t - 1
 \end{array}$$

$$6 \int \frac{t^6 + t^5}{t^2 + 1} dt = 6 \left( \int t^4 dt + \int t^3 dt - \int t^2 dt - \int t dt + \int dt + \int \frac{t-1}{t^2+1} dt \right) = 6 \left( \frac{t^5}{5} + \frac{t^4}{4} - \frac{t^3}{3} - \frac{t^2}{2} + t + \right.$$

$$\left. \frac{1}{2} \int \frac{2t dt}{t^2+1} - \int \frac{dt}{t^2+1} \right) = \left| \begin{array}{l} \int \frac{2t dt}{t^2+1} = \int \frac{d(t^2+1)}{t^2+1} = \ln|t^2+1| \\ \int \frac{dt}{t^2+1} = \arctg t \end{array} \right| =$$

$$= 6 \left( \frac{t^5}{5} + \frac{t^4}{4} - \frac{t^3}{3} - \frac{t^2}{2} + t + \frac{\ln|t^2+1|}{2} - \arctg t \right) + C$$