$$\int_{dz/2\pi i}^{\overline{z-i}=\sqrt{2}} \frac{1}{z^2-2z+3} = \frac{1}{2i\sqrt{2}}$$

$$z^2-2z+3=\left(z-a_+\right)\left(z-a_-\right) \Longrightarrow {}^{a_+}\mathrm{Res}\,\frac{1}{z^2-2z+3}$$

$$\int_{dz/2\pi i}^{\overline{z}=r} \frac{{}^{z}\daleth}{\left(z-a_1\right)\cdot\cdot\left(z-a_n\right)} = \sum_{1\leqslant i\leqslant n} \overbrace{{}^{a_i}\mathrm{Res} = {}^{a_i}\mathrm{Ev}\frac{{}^{z}\daleth}{\prod_{j\neq i}\left(z-a_j\right)}} = \sum_{1\leqslant i\leqslant n}\frac{{}^{a_i}\daleth}{\prod_{j\neq i}\left(a_i-a_j\right)}$$

$$\int_{dz/2\pi i}^{\overline{z}=4} \frac{{}^{z}\daleth}{(z-1)(z-2i)(z+3)}$$

$$\int_{dz/2\pi i}^{\overline{z-1}=r} \frac{z^2}{(z+1)(z-1)^2} = \begin{cases} {}^{-1}\mathrm{Res} = {}^{-1}\mathrm{Ev}\frac{z^2}{(z-1)^2} = \frac{1}{4} \\ {}^{1}\mathrm{Res} = {}^{1}\mathrm{Der}\frac{z^2}{(z+1)} = \frac{3}{4} \end{cases} = 1$$

$$\int_{dz/2\pi i}^{\overline{z}=1} {}^{\pi z}\mathfrak{t}$$

$$z = e^{it}$$

$$\begin{cases} R\left(x{:}y\right) \text{ rational} \\ \text{no poles on } x^2+y^2=1 \end{cases} \Longrightarrow \int_{dt/2\pi}^{0|\pi} R\left({}^t\mathfrak{c}{:}{}^t\mathfrak{s}\right) = \sum_{|z|<1} \operatorname{Res} \frac{1}{z} R\left(\frac{z+z^{-1}}{2}{:}\frac{z-z^{-1}}{2i}\right)$$

$$z = e^{it} \Longrightarrow \begin{cases} dz = izdt \\ {}^t\mathfrak{c} = \dfrac{z+z^{-1}}{2} \\ {}^t\mathfrak{s} = \dfrac{z-z^{-1}}{2i} \end{cases} \Longrightarrow \text{LHS} = \frac{1}{2\pi i} \int^{|z|=1} \frac{dz}{z} R\left(\frac{z+z^{-1}}{2}{:}\frac{z-z^{-1}}{2i}\right) = \text{RHS}$$

$$\int_{dt/2\pi}^{0|\pi} \begin{cases} \dfrac{1}{a+{}^t\mathfrak{s}} = \begin{cases} \operatorname{Res} \dfrac{2i}{z^2+2iaz-1} \overset{\text{Ev}}{\underset{\text{Der}}{=}} \dfrac{2i}{2z+2ia} \\ i\sqrt{a^2-1}-ia \end{cases} = \dfrac{1}{\sqrt{a^2-1}} \\ \dfrac{1}{2-{}^t\mathfrak{s}} = \dfrac{1}{\sqrt{3}} \end{cases}$$

$$\int_{dt/\pi}^{0|\pi} \underset{\text{ev}}{\equiv} \int_{dt/2\pi}^{0|\pi} \begin{cases} \dfrac{1}{a+{}^t\mathfrak{c}} = \begin{cases} \operatorname{Res} \dfrac{2}{z^2+2az+1} \overset{\text{Ev}}{\underset{\text{Der}}{=}} \dfrac{2}{2z+2a} \\ \pm\left(\sqrt{a^2-1}-a\right) \end{cases} \overset{a\geq 1}{=} \dfrac{1}{\sqrt{a^2-1}} \\ \dfrac{1}{3+2{}^t\mathfrak{c}} = \dfrac{1}{\sqrt{5}} \\ \dfrac{1}{2+{}^t\mathfrak{c}} \\ \dfrac{1}{5-3{}^t\mathfrak{c}} \end{cases}$$

$$\int_{2dt/\pi}^{0|\pi/2} = \int_{dt/\pi}^{0|\pi} = \int_{dt/2\pi}^{0|\pi} \begin{cases} \dfrac{1}{a+{}^t\mathfrak{s}^2} \\ \dfrac{a}{a^2+{}^t\mathfrak{s}^2} = \dfrac{2a}{1+2a^2-{}^t\mathfrak{c}} = \dfrac{1}{\sqrt{1+a^2}} \\ \dfrac{1}{1+{}^t\mathfrak{s}^2} = \dfrac{1}{\sqrt{2}} \\ \dfrac{1}{2+{}^t\mathfrak{c}^2} = \dfrac{1}{\sqrt{6}} \end{cases}$$

$$\int_{dt/2\pi}^{0|\pi} \frac{{}^t\mathfrak{s}}{a+{}^t\mathfrak{s}}$$

$$\int_{dt/2\pi}^{0|\pi} \frac{2{}^t\mathfrak{c}}{5-4{}^t\mathfrak{c}} \overset{2{}^t\mathfrak{c}=}{\underset{{}^t\mathfrak{c}^2-{}^t\mathfrak{s}^2}{=}} \operatorname{Res} \frac{z^4+1}{-4z^2\left(z-1/2\right)\left(z-2\right)} = -\frac{1}{4} \begin{cases} {}^0\text{Der}\dfrac{z^4+1}{\left(z-1/2\right)\left(z-2\right)} = \dfrac{5}{2} \\ {}^{1/2}\text{Ev}\dfrac{z^4+1}{\left(z-2\right)z^2} = -\dfrac{17}{6} \end{cases} = \frac{1}{12}$$

$$\int_{dt/2\pi}^{0|\pi} e^{t\mathfrak{c}} \underbrace{{}^{nt}\mathfrak{c} - {}^{t}\mathfrak{s}}$$

$$\int_{dt/2\pi}^{0|\pi} \frac{1}{1 + a^2 - 2a^t\mathfrak{c}} = \begin{cases} \dfrac{1}{1 - a^2} & 0 < a < 1 \\ \dfrac{1}{a^2 - 1} & 1 < a \end{cases}$$

$$\int_{dt/2\pi}^{0|\pi} \begin{cases} \dfrac{1}{(a + {}^t\mathfrak{s})^2} = \operatorname{Res} \begin{cases} \dfrac{-4z}{(z^2 + 2iaz - 1)^2} = \\ \dfrac{-4z}{\left(z - a_+\right)^2 \left(z - a_-\right)^2} \end{cases} = {}^{a_+}\mathrm{Der} \dfrac{-4z}{\left(z - a_-\right)^2} = \dfrac{a}{(a^2 - 1)^{3/2}} \\ \dfrac{1}{(b + a^t\mathfrak{c})^2} = \dfrac{b}{\left(b^2 - a^2\right)^{3/2}} \\ \dfrac{1}{(2 - {}^t\mathfrak{s})^2} \\ \dfrac{1}{(1 + a^t\mathfrak{c})^2} \end{cases}$$

$$\int_{2dt/\pi}^{0|\pi/2} \frac{1}{\left(a + {}^t\mathfrak{s}^2\right)^2} = \frac{2a + 1}{2\left(a^2 + a\right)^{3/2}}$$

$$\overline{a} < 1\colon \quad \int_{dt/\pi}^{0|\pi} \overset{}{\underset{\text{ev}}{\equiv}} \int_{dt/2\pi}^{0|\pi} \begin{cases} \dfrac{{}^{2t}\mathfrak{c}}{1 - 2a^t\mathfrak{c} + a^2} \\ \dfrac{{}^{nt}\mathfrak{c}}{1 - 2a^t\mathfrak{c} + a^2} = \operatorname{Res} \dfrac{z^n}{(z - a)\,(z - 1/a)} \end{cases}$$

$$\int_{dt/2\pi}^{0|\pi} {}^t\mathfrak{s}^{2k} = \frac{(2k)!}{4^k (k!)^2}$$