Complex number

Evaluate:

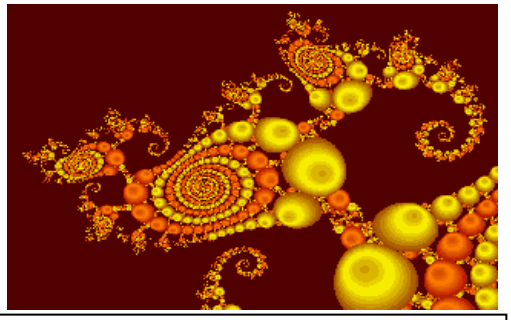
(1) $(1+\mathrm{i})^{2015}+(1-\mathrm{i})^{2015}$

(2) $1+(1+\mathrm{i})+(1+\mathrm{i})^2+(1+\mathrm{i})^3+\cdots+(1+\mathrm{i})^{2015}$.

Solve for all roots (including complex number roots):

(3) $\mathrm{z}^6+\mathrm{z}^3+1=0$

(4) $(\mathrm{z}+1)^5+(\mathrm{z}-1)^5=0$.



Beautiful fractal diagram begins with a complex number.