

$$F(v) = \frac{(1-v)(1-v^2)(1-v^3) \dots}{(1-2v \cos \frac{2\pi}{5} + v^2)(1-2v^2 \cos \frac{4\pi}{5} + v^4) \dots}$$

$$f(v) = 1 + \frac{v}{1-2v \cos \frac{2\pi}{5} + v^2} + \frac{v^2}{(1-2v \cos \frac{2\pi}{5} + v^2)(1-2v^2 \cos \frac{4\pi}{5} + v^4)} + \dots$$

$$F(v^{\frac{1}{5}}) = A(v) - 4v^{\frac{1}{5}} \cos^2 \frac{2\pi}{5} \cdot B(v) + 2v^{\frac{2}{5}} \cos \frac{4\pi}{5} \cdot C(v) - 2v^{\frac{3}{5}} \cos \frac{2\pi}{5} \cdot D(v) \dots$$

$$f(v^{\frac{1}{5}}) = \left\{ A(v) - 4 \sin^2 \frac{\pi}{5} \phi(v) \right\} + v^{\frac{1}{5}} B(v) + 2v^{\frac{2}{5}} \cos \frac{2\pi}{5} C(v) - 2v^{\frac{3}{5}} \cos \frac{2\pi}{5} \left\{ D(v) + 4 \sin^2 \frac{3\pi}{5} \psi(v) \right\}$$

$$A(v) = \frac{1-v^2-v^4+v^6+\dots}{(1-v)^2(1-v^4)^2(1-v^6)^2 \dots}$$

$$B(v) = \frac{(1-v^5)(1-v^{10})(1-v^{15}) \dots}{(1-v)(1-v^4)(1-v^6) \dots}$$

$$C(v) = \frac{(1-v^5)(1-v^{10})(1-v^{16}) \dots}{(1-v^2)(1-v^3)(1-v^7) \dots}$$

$$D(v) = \frac{1-v-v^4+v^7+\dots}{(1-v)^2(1-v^3)^2(1-v^7)^2 \dots}$$

$$\phi(v) = -1 + \left\{ \frac{1}{1-v} + \frac{v^5}{(1-v)(1-v^4)(1-v^6)} + \frac{v^{20}}{(1-v)(1-v^4)(1-v^6)(1-v^7)(1-v^{11})} + \dots \right\}$$

$$\psi(v) = -1 + \left\{ \frac{1}{1-v^2} + \frac{v^5}{(1-v^2)(1-v^3)(1-v^7)} + \frac{v^{20}}{(1-v^2)(1-v^3)(1-v^7)(1-v^8)(1-v^{15})} + \dots \right\}$$

$$\frac{v}{1-v} + \frac{v^3}{(1-v^2)(1-v^3)} + \frac{v^5}{(1-v^2)(1-v^3)(1-v^5)} + \dots = 3\phi(v) + 1 - A(v)$$

$$\frac{v}{1-v} + \frac{v^2}{(1-v)(1-v^4)} + \frac{v^7}{(1-v^2)(1-v^3)(1-v^7)} + \dots = 3\psi(v) + v^5 A(v)$$

$$\frac{v^2}{1-v} + \frac{v^8}{(1-v)(1-v^4)} + \frac{v^{18}}{(1-v)(1-v^3)(1-v^5)} + \dots = \phi(v) - v \cdot \frac{1+v^5+v^{15}+\dots}{(1-v^4)(1-v^6)(1-v^7) \dots}$$

$$= \psi(v) + v \cdot \frac{1+v^5+v^{15}+\dots}{(1-v^2)(1-v^3)(1-v^7) \dots}$$