

ON PRIME NUMBERS^⑩ (Definition X)

October 31, 2019

Yuji Masuda

(y_masuda0208@yahoo.co.jp)

$$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = e$$

$$\left(1 + \frac{1}{\infty}\right)^{\infty} = \left(1 + \frac{1}{-2}\right)^{-2}$$

$$= \left(\frac{4}{3}\right)^3 = \left(\frac{-1}{-27}\right)^{\frac{1}{2}}$$

$$= \left(\frac{1}{27}\right)^{-\frac{1}{3}} = \left(\frac{1}{27}\right)^{-\frac{1}{3}}$$

$$= \frac{1}{\left(\frac{1}{27}\right)^{\frac{1}{3}}} = \frac{1}{\frac{1}{3}} = 3 = -2 = e$$

$$\therefore \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = e$$