and

$$\begin{aligned} a_6^3 + b_6^3 - c_6^3 - 1 &= 529398785665^3 + 543927106802^3 - 676276803218^3 - 1 \\ &= 1483709311818771712048818272589546 25 \\ &\quad + 160924477506781393483609065194721608 \\ &\quad - 309295408688658564688490892453676232 - 1 = 0. \end{aligned}$$

Thus Ramanujan's statement is proved.

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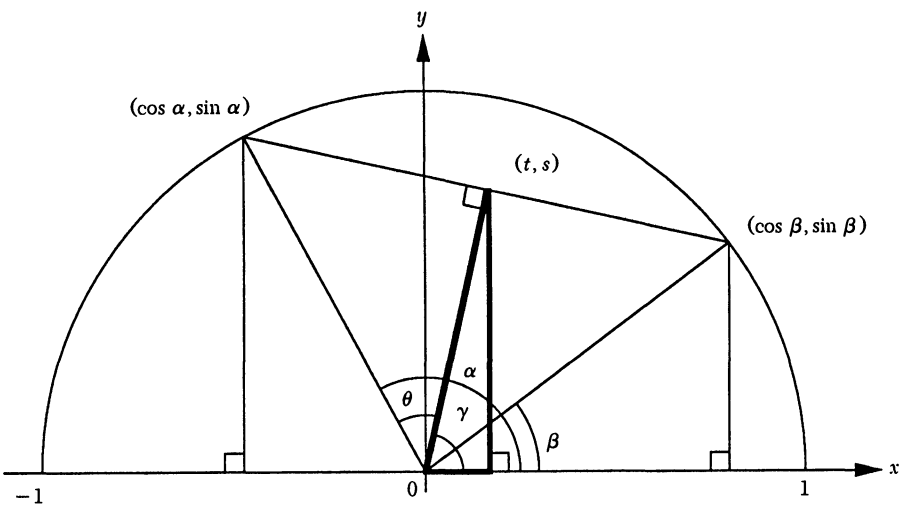
Proof Without Words: The Sum-Product Identities



$$\theta = \frac{\alpha - \beta}{2} \qquad \gamma = \frac{\alpha + \beta}{2}$$

$$\frac{\sin\alpha + \sin\beta}{2} = s = \cos\frac{\alpha - \beta}{2}\sin\frac{\alpha + \beta}{2}$$

$$\frac{\cos\alpha + \cos\beta}{2} = t = \cos\frac{\alpha - \beta}{2}\cos\frac{\alpha + \beta}{2}$$

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