



PI SUMS

π appears unexpectedly in the famous result below that was found by mathematician Leonard Euler in the 1730s.

$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} \dots = \frac{\pi^2}{6}$$

Use the result to find the value of the following infinite sums:

A

$$\frac{1}{2^2} + \frac{1}{4^2} + \frac{1}{6^2} \dots$$

B

$$\frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} \dots$$

C

$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{5^2} + \frac{1}{7^2} + \frac{1}{10^2} \dots$$

(Here the sum is made by removing every term from the original sum whose position in the series was a multiple of 3 or 4).

D

Find an infinite sum that is equal to:

$$\frac{4\pi^2}{25}$$