

How many positive integers can be written as a sum of cubes of numbers in two different ways? (taxi-cab numbers)

$$C = a^3 + b^3 \\ = p^3 + q^3$$

$$\underline{1729} = \overset{a}{1^3} + \overset{b}{12^3} \checkmark$$

$$a=1 \quad b=12$$

$$\text{or} \\ \underset{p}{9^3} + \underset{q}{10^3} \checkmark$$

$$p=9 \quad q=10$$

$$a^3 + b^3 = p^3 + q^3 \checkmark$$

$$a \neq b \neq p \neq q \checkmark$$

for numbers less 10,000