In this problem, Diophantus asks for two square numbers whose product added to either results in a square number. Once again, he is intrigued by the extent to which rational numbers can be represented as squares. His answer is \((\frac{3}{4})^2\) and \((\frac{7}{24})^2\).

Let’s look at the problem from our viewpoint. We are looking for positive rational numbers \(x\) and \(y\) for which \(x^2y^2 + x^2\) and \(x^2y^2 + y^2\) are squares of rational numbers. Thus, after factoring, the conditions to be met are that \(x^2(y^2 + 1)\) and \(y^2(x^2 + 1)\) are squares. This is equivalent to both \(x^2 + 1\) and \(y^2 + 1\) being squares.

But the condition that \(x^2 + 1 = a^2\) can be transformed. If we put \(x\) and \(a\) over a common denominator, then the problem is to find the numerators and that denominator: to find positive integers \(u, v, n\) so that \(x = u/n, a = v/n, u^2 + n^2 = v^2\). So in fact, this is a problem about finding Pythagorean triples. (The extent to which Diophantus realized that II28 concerned Pythagorean triples isn’t clear.) If we use the basic triple, \(u = 3, n = 4, v = 5\), for \(x\) and similarly use the triple \(7, 24, 25\) for \(y\), we get \(x^2 = (\frac{3}{4})^2\) and \(y^2 = (\frac{7}{24})^2\), Diophantus’s special solution.