

In-Class Problems Week 3, Fri.

Problem 1. Given an unlimited supply of 5 cent and 7 cent stamps, what postages are possible? Prove it using Strong Induction. *Hint:* Try some examples! Which postage values between 1 and 25 cents can you construct from 5 cent and 7 cent stamps?

Problem 2. We consider integer solutions to the equation

$$4a^3 + 2b^3 = c^3 \tag{1}$$

(a) Use the Well-ordering Principle to prove that there is no integer solution to equation (1) with $a > 0$.

(b) Show that the only integer solution to equation (1) is $a = b = c = 0$.