PROOF BY INDUCTION

Let P(n) be “That every amount of postage of 18 cents or more can be formed using just 3-cent and 10-cent stamps.”

Basis step n = 18

P(18) is true, because 18 cents can be formed using 6 3-cent stamps

6*3=18

Inductive step Assume that P(k) is true, then a postage of k cents can be formed using just 3-cent and 10-cent stamps.

We need to prove that P(k+1) is true.

If k cents can be formed using >= 3 3-cent stamps, then we substitute 3 3-cent stamps with 1 10-cent stamps to get k+1 cents. Boom.

3*3+1 = 9+1=10 Quick maths.

If k cents can be formed using < 3 3-cent stamps, then the k cents was formed with at least 2 10-cent stamps (b/c k>= 18, k =18, k=19 and both use at least 3 3-cent stamps)

If we substitute 2 10-cent stamps with 7 3-cent stamps, then we get k+1 cents

2*10 +1 = 20+1 = 21 = 7*3

We see then that P(k+1) is true, in those two cases.

Conclusion: By principle of mathematical induction, P(n) is true for all + integers n. Oof, what more do you want.