

### Answer Question #38967, Math, Abstract Algebra

Tamil has \$600 in his bank account & Niydiyah has \$500 in hers. Each Friday Tamil withdraws \$15 and Niydiyah withdraws \$12. Will their bank balances ever be equal? if they are equal how many weeks will it take? If they are not equal, what's the smallest difference?

**Solution:**

Let  $x$  – number of weeks passed, then:

$$600 - 15 * x = 500 - 12 * x$$

$$100 = 3 * x$$

$$x = \frac{100}{3} = 33\frac{1}{3}$$

$x$  is integer number, so their bank balances will not be equal.

Let's find the smallest difference! We will take  $x_1 = 33, x_2 = 34$  (the nearest integer numbers to  $33\frac{1}{3}$ ).

$$|600 - 15 * 33 - 500 + 12 * 33| = |105 - 104| = 1$$

$$|600 - 15 * 34 - 500 + 12 * 34| = |90 - 92| = 2$$

So the smallest difference will be after 33 weeks and it will be equal to 1!