

Esame di Lingua Inglese (1.5 ore)

Confused bank teller

A confused bank teller transposed the dollars and cents when he cashed a check for Ms Smith, giving her dollars instead of cents and cents instead of dollars. After buying a newspaper for 50 cents, Ms Smith noticed that she had left exactly three times as much as the original check. What was the amount of the check?

Let x be the number of dollars in the check, and y be the number of cents. Consider the numbers of dollars and cents Ms Smith holds at various times. The original check is for x dollars and y cents. The bank teller gave her y dollars and x cents. After buying the newspaper she has y dollars and $x - 50$ cents. We are also told that after buying the newspaper she has three times the amount of the original check; that is, $3x$ dollars and $3y$ cents. Then, bearing in mind that x and y must both be less than 100 (for the teller's error to make sense), we equate dollars and cents.

As $-50 \leq (x - 50) \leq 49$ and $0 \leq y \leq 99$, there is a relatively small number of ways in which we can equate dollars and cents. Clearly, $3y - (x - 50)$ must be divisible by 100. Further, by the above inequalities, $-49 \leq 3y - (x - 50) \leq 347$, giving us four multiples of 100 to check. We compute easily that there is only one integer solution; so the check was for \$18.56.

ESERCIZI

1. SELEZIONARE IL CORRETTO COMPLETAMENTO

1. One dollar is (less than) (fewer than) (least than) 200 cents.
2. There are (no more) (much more) (many more) noninteger solutions to the problem.
3. She had (many) (much) (long) times the amount of the original check.
4. When (did) (do) (has) she notice the error?

2. TRADURRE IN INGLESE LE FRASI SEGUENTI

1. Un giornale costa 50 centesimi.
2. Il cassiere commette un errore.
3. Se ci fossero più soluzioni intere, il problema non sarebbe risolvibile.
4. Un altro approccio consiste nello scrivere l'equazione $100y + x - 50 = 3(100x + y)$ e cercarne soluzioni intere con l'algoritmo euclideo.

3. TRADURRE IN ITALIANO IL TESTO