

# fun with NUMBERS

## Can you find the “missing dollar”?

- 1 you and two friends decided to have dinner together, to meet and catch-up ...
- 2 after enjoying dinner, appetizers, drinks, and friendly conversation the bill arrives ...
- 3 to simplify everything, each of you would contribute \$ 10 toward paying the bill ...
- 4 the restaurant, realizing a pricing mistake, would give the waiter \$ 5 to refund ...
- 5 the refund was five (5) one-dollar bills that the waiter returned to each of you ...
- 6 it was easier for each of you to take one dollar apiece and give the waiter a \$ 2 tip ...
- 7 the transaction began with \$ 10, one dollar was refunded; so dinner only cost \$ 9 ...
- 8 let's think this through: ① each of you paid \$ 9 ... ② multiplied by three equals \$ 27 ...
- 9 ③ adding in the \$ 2 tip you gave the waiter for his service and for being honest ...
- 10 ④ your \$ 9 each, multiplied by three [\$ 27] plus the waiter's \$ 2 tip equals \$ 29 ...
- 11 the transaction began with \$ 10 each [\$ 30 total] but now is missing a dollar ...

So ... can you find that “missing dollar”?



Let's identify the problem and arrive at a solution by re-constructing from the very beginning ...  
steps 1 ... 2 and 3 identified that three people gathered together (*i.e.*, “you and two friends”) with each of you contributing \$10.00 toward the cost of the meals; \$30.00 total ... *so far, so good.*

Steps 4 and 5 introduces a new element to the process (*i.e.*, “a pricing mistake”) that resulted in \$5.00 being returned in the form of five, one-dollar bills ... if there were three people who contributed \$30.00 for the meal yet \$5.00 was returned, the actual cost of the meal was \$25.00 ... *that's part of the answer.*

Step 6 added \$2.00 that was given to the waiter; now bringing the total to \$27.00 (*i.e.*, \$25.00 + \$2.00) ... then the five one-dollar bills distributed \$1.00 to each of the three people brought the distribution to \$30.00 (*i.e.*, \$27.00 + \$1.00 + \$1.00 + \$1.00 ≈ \$30.00) ... *being told what to think was intended to distract the facts.*