Midterm 1 Correction

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Because I didn't have any significant errors in any of the problems on my midterm (the largest amount of points I lost was from a single true/false question), I decided to just do the problem I didn't answer on the midterm.

Problem 2.

a Use the Babylonian method and sexigesimal arthmeic to compute the quotient. (Other methods receive zero credit.)

$1, 50 \div 9 =$

We write this as $1, 50 \times \frac{1}{9}$.

In sexigesimal, $\frac{1}{9} = 0; 6, 40$.

So, we have $1, 50 \times 0; 6, 40$.

This gives $12, 13$.

b. Use the Egyptian method of doubling, find the product. (Other methods receive zero credit.)

$22 \times 2\bar{6} =$

Doubling 22:

1: 22

2: 44

Note: It is impossible to calculate or represent $\frac{1}{6}$ using purely power of 2 fractions (without using an infinite sum).

Since $\frac{1}{6}$ cannot be computed exactly using doubling, I will instead just calculate it directly since it is a unit fraction, but the Egyptians likely would have instead approximated it using power of 2 unit fractions to the desired precision.

Computing it directly gives $3 + \frac{2}{3} = 3\bar{\bar{3}}$.

The precise answer works out to $2 \times 22 + \frac{1}{3} \times 11 = 44 + 3\bar{\bar{3}} = 47 + \frac{2}{3} = 47\bar{\bar{3}}$.