Problem Set XIII

Problem 1

(a) Little Max wrote an equality on the board. Little Bella erased three digits and replaced them with asterisks. Restore the original equality:

$$* + * = *8$$

(b) Little Bella wrote an equality on the board. Little Max erased four digits and replaced them with asterisks. Restore the original equality.

$$* * 5 - ** = 8$$

Problem 2 Restore the missing digits:

$$*9 * + * 7 = ** 43, \quad ** 71 - *9* = *3, \quad ** \times 52 = *4 + ** 0 = *8*$$

Problem 3

(a) Three different purses are filled with gold sand. How can you arrange them in the order from the heaviest to the lightest using 3 weighings on a balance scale with two pans?

(b) Four different purses are filled with gold sand. How can you arrange them in the order from the heaviest to the lightest using 5 weighings on a balance scale with two pans?