## MENTAL ARITHMETIC.

is 57 ÷ 8 leaves a remainder of 1) the ending in the result is 12½, that is  $\frac{1}{2}$  of 100; if the remainder is 2 the ending is equal to  $\frac{2}{5}$  or  $\frac{1}{4}$  of 100, that is 25, if 3 it is equal to  $\frac{2}{5}$  of 100 or  $37\frac{1}{2}$ , and so on with the other remainders.

(c) Since  $12\frac{1}{2} = 10 + 2\frac{1}{2}$  and  $2\frac{1}{2} = \frac{1}{4}$  of 10, multiply the number by 10 and to the result add  $\frac{1}{4}$  of itself, e. g.,

 $48 \times 12\frac{1}{2} = (48 \times 10) + \frac{1}{4}(48 \times 10) = 480 + 120 = 600.$ 

The nature of the question will determine which of the three methods can be most easily applied.

It will be found beneficial to do all questions by all possible methods as the extra drill will develop the power to retain in the memory the numbers used, until the work is completed, and that is the most difficult part of the work for students.

Drill by multiplying numbers of two or three figures by  $12\frac{1}{2}$ .

**Rule XI.** To multiply a number by  $22\frac{1}{2}$ :-

Since  $22\frac{1}{2} = 20 + 2\frac{1}{2}$  and  $2\frac{1}{2} = \frac{1}{8}$  of 20, multiply the number by 20 as in Rule VIII and to the result add  $\frac{1}{8}$  of itself, e. g.,

 $48 \times 22\frac{1}{2} = (48 \times 20) + \frac{1}{8} (48 \times 20) = 960 + 120 = 1080.$ 

Rule XII. To multiply a number by 371:--

Since  $37\frac{1}{2} = 25 + 12\frac{1}{2}$  and  $12\frac{1}{2} = \frac{1}{2}$  of 25, multiply the number by 25 as in Rule IX and to the result add  $\frac{1}{2}$  of itself, e. g.  $32 \times 37\frac{1}{2} = (32 \times 25) + \frac{1}{2}(32 \times 25) = 800 + 400 = 1200$ ; or multiply  $\frac{1}{2}$  of the number by 100.

## Rule XIII. To multiply any number by 50:-

Since fifty times a number equals  $\frac{1}{2}$  of 100 times the number, or is equal to 100 times  $\frac{1}{2}$  the number, divide the number by 2 and call the result hundreds, e. g.,

 $48 \times 50 = 48 \div 2 \times 100 = 2400.$ 

 $49 \times 50 = 49 \div 2 \times 100 = 24\frac{1}{2} \times 100 = 2450.$ 

Observe that if the number to be multiplied is even the result ends in 00, but if odd it ends in 50.

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