

the statements we have frequently made in this magazine. Every educated person should have this pamphlet.

A WORD TO THE WISE.—There is nothing easier to forget than the fact that the capacities of scholars are limited: Whenever any new subject crops up which some one imagines should be taught in our schools, he begins to grumble, to agitate, to interfere, to make the lives of school-men

uncomfortable generally until the "pet" is put on the Public School programme. But all the while there is not a thought given to the other side of the question. The programme was overcrowded before this last one was put on, and since it has been put on another should have been taken off. In this way thoughtless, meddling people do much hurt to the children by subjecting them to overpressure and of necessity inducing superficiality in their studies. A word to the wise is sufficient.

SCHOOL WORK.

MATHEMATICS.

ARCHIBALD MACMURCHY, M.A., TORONTO,
EDITOR.

SOLUTIONS TO MENTAL ARITHMETIC.

SECOND CLASS, 1887.

By F. F. Manley, M.A., Math. Master,
C. I., Toronto.

1. Simplify (a) $623 \times 18 \div 42$;
(b) $\frac{7}{8} + (\frac{1}{4} \text{ of } \frac{1}{10}) - (\frac{1}{8} \text{ of } \frac{1}{5})$.

1. (a) $89 \times 3 = 267$.
(b) $\frac{7}{8} + \frac{1}{4} - \frac{1}{8} = \frac{1}{2} = 1\frac{1}{2}$.

2. Eight men hire a coach, but getting six more to join them the cost to each of the first is reduced \$1 $\frac{1}{2}$. Find cost of the coach.

2. $\$1\frac{1}{2} \times 8 = \$12 = \text{amt. paid by the 6 men,}$
 $\$12 \div 6 = \2 apiece,
 $8 + 6 = 14, 14 \times 2 = \$28.$

3. By selling an article for 37 $\frac{1}{2}$ cents my gain would be only $\frac{1}{5}$ of what it would be at 45 cents. What is the cost?

3. $45c. - 37\frac{1}{2}c. = 7\frac{1}{2}c. = \frac{1}{4} \text{ of gain at } 45c.$
 $\frac{3}{4} = \frac{1}{5}, \text{ gain} = 20c., 45 - 20 = 25c. \text{ cost.}$

4. A grocer who defrauds 1 $\frac{1}{2}$ oz. in the pound gains 20 per cent., what would be his gain in giving fair weight?

4. He receives $\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$ of cost, but he gains $\frac{1}{4} \div \frac{14}{15} = \frac{1}{14}$ by fraud; $\therefore$ receives $\frac{1}{14}$ of what he fairly ought to receive. $\therefore$ He

fairly would receive $\frac{1}{14}$ of $\frac{3}{4} = \frac{1}{10}$, $\therefore$ gains 10 per cent.

5. What is the simple interest on \$600 for 5 yrs. 7 mos. 15 days at 8 per cent. ? (30 days to a month.)

5. 15 days = $\frac{1}{2}$ month, 7 $\frac{1}{2}$ mos. = $\frac{5}{8}$ year, 5 $\frac{5}{8}$ year = $\frac{45}{8}$. \$600 for $\frac{45}{8}$ years at 8 per cent. is same as \$600 for one year at 45 per cent. = \$270.

6. When 10 $\frac{1}{2}$ of the receipts are profit, what is the gain per cent. ?

6. 10 $\frac{1}{2}$ per cent. = $\frac{21}{40} = \frac{2}{5}, \frac{2}{5}$ of receipts = $\frac{2}{5}$ of cost, $\frac{2}{5} = \frac{1}{2.5}$. $\therefore$ gains 12 per cent.

7. Sold coffee at 1s. 3d., tea at 2s. 9d.; by selling 12 lbs. more coffee than tea, the receipts from each are equal. How many lbs. of each were sold ?

7. 1s. 3d. $\times 12 = 15s.$, every pound of tea makes a difference of 2'9 - 1'3 = 1'6.

$$15 \div 1'6 = 10 \text{ lbs. tea.}$$

$$10 + 12 = 22 \text{ lbs. coffee.}$$

8. The stocks of two partners, A. and B., are \$240 and \$300 respectively, and their gains \$48 and \$75 respectively. Find how long each man's stock was in trade, it being known that B.'s time was three months longer than A.'s.

8. \$240 gains \$48 in a certain time, $\therefore$ \$300 should gain $\frac{5}{4}$ of 48 = \$60; $\therefore$ \$300 gains 75 - 60 = \$15 in the extra 3 months; $\therefore$ \$300 gains \$75 in 15 months; 15 - 3 = 12 months.