

SUPERANNUATED TEACHERS.

To the Editor of the Canada School Journal.

SIR,—I trust the time is not far distant when the regulations relating to superannuated teachers will, by the Government of the day, with the advice of the Minister of Education, be radically changed. To-day many of the pioneer teachers of the country are in destitute circumstances, and soon many of us now in active work will be compelled to join the list because living is high, salaries are low, and the superannuation allowance is insufficient. In this case it makes but little difference whether the certificate held is Provincial or County Board, the worn-out pioneer teachers of this country should receive a competent retiring allowance in their old age. Why not give superannuated teachers salaries after a definite number of years of active service, as is done in some other countries? The amount of salary could be determined either by the certificate held or by taking the average of the salary received during the last six years of active service. These men have not served their country in arms, it is true; but they have rendered nobler and far more enduring service, and I am mistaken if this country is unwilling to give them sufficient support in old age. As the subject has been opened, I trust it will be thoroughly discussed.

Yours truly, J. D., Windsor.

To the Editor of the Canada School Journal.

DEAR SIR,—I have just read an article in the Dec. No. of the C. S. J. in regard to superannuated teachers, and heartily concur with the sentiments therein advanced in reference to the claims of holders of First Class County Board Certificates. A great part of the best public school work, before 1871, was done by these men, and what they are still doing would not be unduly exalted by placing it in the second rank, their lack of professional training being made up by their great experience. They are, therefore, fairly entitled to be placed on the same level as the holders of Second Class Provincial Certificates. Many of these men spent the best of their days in the public service, when the remuneration of teachers was much less than it is now, and had but scant opportunity of providing for declining years. Benevolence and strict justice require a liberal reconsideration of their case.

But the Superannuated Fund needs a little more reform than this. The salaries of teachers vary much. This is on account of the difference in the value of the services rendered. Is there any valid reason why the payments to the S. Fund and the pensions received from it should not vary accordingly? It would not be far from the mark to say that the salaries of First, Second, and Third Class Teachers vary as the numbers 4, 3, and 2. According to this view of the case, holders of First Class Certificates should pay in \$8.00 and receive \$12.00; Second Class should pay \$6.00 and receive \$9.00; Third Class should pay \$4.00 and receive \$6.00 per annum for each year of service, or some such scale. Both reason and precedent are in favor of such a course, if I mistake not.

Hoping to hear from others on the subject, and that action may be speedily taken to bring the matter before the proper authority, I remain yours truly, A. B.

Examination Questions.

Under this head will be published from month to month the papers set at the examination for entrance into the High Schools of Ontario, the Intermediate High School Examination, the examination of candidates for Public School teachers' certificates, and the Junior and Senior Matriculation examinations of the University of Toronto. The Mathematical papers will in all cases be accompanied by analytical solutions of the more difficult problems and hints on the best methods of solving the others.

DECEMBER EXAMINATIONS, 1878.

SECOND CLASS TEACHERS AND INTERMEDIATE.

ARITHMETIC.

TIME—THREE HOURS.

Examiner—J. A. McLELLAN, LL.D.

NOTE—Ten marks allowed for each question.

1. Show that $\frac{1}{2}$ of $1 = \frac{1}{2}$ of 4.

Simplify

$$\left\{ \frac{1}{2} \left(\frac{4\frac{1}{2} \text{ of } 6\frac{3}{4}}{7\frac{3}{4}} \right) \div \frac{8\frac{3}{4} + 2\frac{1}{4}}{9\frac{3}{4} - 5\frac{1}{4}} \right\} \text{ of } £182 \text{ 7s. 5d.}$$

2. Prove the principle on which the rule for finding the G.C.M. of two quantities depends.

Find the G.C.M. of 169087 and 66429, and the L.C.M. of 44, 48, 52, 96.

3. Define Ratio. Show how to find a fourth proportional to three given numbers,

A grocer has 224 lbs. of a mixture of chicory and coffee, the chicory being to the coffee as 1 : 6; what amount of chicory must be added to make the ratio 1 : 5?

4. A cistern (no lid) whose floor and walls are an inch and a-half thick, is 5 ft. 8 in. long, 3 ft. 7 in. wide, and 2 ft. 5½ in. high, in external dimensions; find the cost of painting the internal surface at 90 cents per square yard.

5. Perform the following operation:—.058407 × .047126 to six places of decimals; and 2.569141797 ÷ 7.5284 to five places of decimals. (Ten marks to be allowed if done by the contracted method; 5 marks for correct answer obtained in any other way.)

6. A note for \$780, drawn at 90 days and bearing interest at 8% per annum, is discounted by a broker 45 days before maturity; what must the broker pay for the note in order to realize 10% for his money? (No days grace.)

7. A discount (true discount) of \$4 was allowed on a bill of \$52 that had 8 months to run, and at the same rate a discount of \$5 was allowed on a bill of \$75; how long had the latter bill to run?

8. A grocer mixed coffee at 28 cents a pound with some of a better kind at 42 cents a pound, and by selling the mixture at 35 cents a pound he gained 15% on the former and 20% on the latter; in what proportion did he mix them?

9. A vat 4 ft. long, 3 ft. wide, and 9 inches deep, contains pulp for making paper; a percentage of the pulp is lost in drying, and a sheet of paper 2700 yards long, 2 ft. 6 in. wide and .004 of an inch thick, is obtained; what per cent of the pulp was lost in drying?

10. Find the area of a trapezoid whose parallel sides are 27.5 and 38.5 chains respectively, and whose other sides are 12.5 and 15.5 chains respectively.

ARITHMETIC, SOLUTIONS.

1. (1) See Mental Arithmetic.

(2) Fraction = $\frac{1}{2}$ of $4\frac{1}{2} \times 3\frac{3}{4} \times 2\frac{1}{5} \times 1\frac{2}{3} \times \frac{7}{10} = 7\frac{1}{2}$; and $7\frac{1}{2}$ of £182 7s. 5d. = 7 × (£1 1s. 1d.) = £7 7s. 7d.

2. (1) See text-book.

(2) G. C. M. = 121. L. C. M. = 4 × 11 × 13 × 24.

3. (1) Text-book. (2) Chic. = $\frac{1}{2}$ of 224 = 82; coffee = 192; which, after ch. is added, = 5 times ch.; ∴ ch. = 88½; ∴ 88½ - 82 = 6½ lbs. added.

4. Internal dimensions are 5 ft., 3½ ft., 2½ ft. ∴ cost = 8½ × 5 × 1½ × (2 × 5 + 2 × 3½) × 2½ × 1½ = \$5½.

5. See Hamblin Smith's Arithmetic.

6. Amount of note for 90 days = \$744½. Broker is to make $\frac{1}{10}$ of his money in 1 year; ∴ $\frac{1}{10}$ of it in 45 days (= $\frac{1}{20}$ of a year). ∴ $\frac{1}{20}$ of what he pays = \$744½. Ans. \$735.46 +

7. In first case disc. = $\frac{1}{10}$ of amt., Int. = $\frac{1}{10}$; in second case, Int. = $\frac{1}{10}$; $\frac{1}{10}$ for 8 months. ∴ $\frac{1}{10}$ for 8 × 12 ÷ 14 = 6½ months.

8. 28c + 15% of it = 32½; 42c + 20% of it = 50½; 1 lb. of former sold at 35 cts. gives gain 2½ = $\frac{1}{4}$; 1 lb. of latter sold at 35 cts. gives loss 15½ = $\frac{3}{4}$; ∴ they must be mixed in proportion, 77 of former : 14 of latter = 11 : 2.

9. Pulp = 4 × 3 × $\frac{1}{4}$ = 9 cubic feet; paper = 8100 × 2½ × $\frac{1}{1000}$ = 6½ cubic ft.; ∴ loss = 9 - 6½ = 2½, which is 25% of 9.

10. First find perpendicular dist. of parallelsides; figure is made up of a parallelogram and a triangle whose three sides are 12.5, 15.5, 11, and whose area ∴ is $\sqrt{4641}$; this divided by $\frac{1}{2}$ (half the base) = $\frac{2\sqrt{4641}}{11}$ = perpendicular required; then half sum of parallel sides = 38; ∴ area = $\frac{2\sqrt{4641}}{11} \times 38 = 6\sqrt{4641}$.

ALGEBRA.

TIME—TWO HOURS AND A HALF.

Examiner—J. A. McLELLAN, LL.D.

NOTE.—Candidates, in order to pass, must make at least 20 marks on this paper, and at least 120 marks on the group—Arithmetic, Algebra and Euclid.