### Problem in Mental Arithmetic.

ANSWER, CHAS. $300, SAM, $450, PETER, $1750.

The solutions to this question are too lengthy for our space. We may give one at some future time if thought desirable.

Correct answers from S. B. Ganton and P. C. Shafer.

### ARITHMETICAL PROBLEM.

At the end of the 5th year there would be $212 due, and if the rate is 10 per cent. $\frac{1}{11}$ of the $212 or $19$\frac{3}{11}$ is interest, and $212—19$\frac{3}{11}$ = $192$\frac{8}{11}$ the last instalment of principal. The 4th instalment is $224, from which we subtract $19$\frac{3}{11}$ the interest on the last payment for 1 year, then $\frac{1}{11}$ of the remainder is the the interest on 4th payment, = $18$\frac{24}{121}$, and the 4th payment of principal is $186$\frac{15}{121}$—and proceeding thus—subtracting from each payment the interest on all the instalments we have already found, and taking $\frac{1}{11}$ of the remainder in each case as the interest on that instalment, and counting the difference between that interest and the sum of which it is the $\frac{1}{11}$ part,—the principal for that payment,—we find that the person may give $903 $\frac{455}{1331}$

P. C. SHAFER,

North Glanford, July 4th, 1868.

We give the above solution, though we do not exactly like its form, it being the only one sent us, showing the correct answer by Compound Interest, which we deem the conditions of the question require. We also give below, another solution which shows the correct result if we work by simple Interest.

Each instalment = $1000 ÷ 5 = $200. Then

| | | | | |
|---|---|---|---|---|
| 1st. | payment, | Interest | included | is $260. |
| 2nd. | " | " | " | $248. |
| 3rd. | " | " | " | $236. |
| 4th. | " | " | " | $224. |
| 5th. | " | " | " | $212. |

The amounts of $1 for 1, 2, 3, 4 and 5 yrs. at 10 per cent. are respectively $1·10, $1·20, $1·30, $1·40 and $1.50, and the present values of the several payments are $260 ÷ 1·10, $248, ÷ 1·20, $236 ÷ 1·30, $224 ÷ 1·40 and $212 ÷ 1·50. The sum of these results $925·90$\frac{10}{21}$ is the amount required.

S. B. GANTON,

Wellington Square, June, 8 '68.

### ALGEBRAIC PROBLEM.

$$\frac{x^{\frac{1}{2}} + 8}{x} = \frac{7}{x^{\frac{1}{2}} + 2}$$

hence $7x = x + 10x^{\frac{1}{2}} + 16$

or $x - 3x^{\frac{1}{2}} = 8$

&c. $x + \frac{9}{4}x^{\frac{1}{2}} + \frac{81}{16} = \frac{121}{16}$

wherefore $x^{\frac{1}{2}} = -\frac{9}{4} + \frac{11}{4} = 1$ or $-5$

ergo $x = 1$ or $\frac{25}{16} = 7\frac{9}{16}$ Ans.

H. McKAY, Jerseyville

We have also received a correct answer from J. Cameron. The statement of this problem was misunderstood by S. R. Brown and S. B. Ganton, both of whom sent correct solutions according to their understanding of it.

### MATHEMATICAL PROBLEM.

The ship sailing north will have made 35 miles, and the one east 50 in five hours.

Let $x$ = the distance sailed by the latter on "tack;"

then, $\frac{7}{10}x$ = distance sailed by former in the same time.

and $\frac{7}{10}x + 35$ = her total distance.

Hence $x^2 = (\frac{7}{10}x + 35)^2 + (50)^2$. (Euc. I. 47.)

or $\frac{51}{100}x^2 - 49x = 3725$

whence $x = 146\frac{4}{51}$ or $-50$.

THEN BY TRIGONOMETRY.

| | | |
|---|---|---|
| 147.08 | . . . arith. com. | 7.835414. |
| 50 | . . . . . | 1.698970. |
| Sin. 90° | . . . . | 10.000000. |
| Sin. 20° 1 min. nearly | . . | 9.534384. |

Hence, the distance is 146 $\frac{4}{51}$ miles, and the course ABOUT N. 20° W. PLANE SAILING.

It will, of course, be noticed that the negative values satisfy in case of returning.

H. McK..Y,

Jerseyville, Ont.

We have also received correct answers from S. R. Brown, and S. B. Ganton. Another party sent us a solution in which he obtained the right distance, but not the right angle.

☞ Solutions for this department should be sent in early as we frequently receive the same too late for insertion.

## Educational Intelligence.

LOWER CANADA.— The report of the Superintendent of Public Instruction for 1866, just published, gives the number of primary schools as 3,586, with an equal number of teachers, and an attendance of 178,961; second class schools 220, with 1,114 teachers, and 26,468 pupils; and 17 superior, normal and special schools, with 126 teachers and 1,451 pupils: in all 3,826 schools, 4,829 teachers and 206,820 pupils. The increase of schools of all kinds during the year was 120; increase of pupils, 4,172; in amount of school contributions of all kinds, $49,618—more than ten times the increase for 1865. Since 1853 the increase has been, in schools, 1,474; in pupils, 98,526. There were 138 Protestant Dissentient schools with 4,467 pupils; and 59 Catholic schools with 1,433 pupils.

UNITED STATES.—The National Teachers' Association will hold its next meeting in Nashville, Tennessee, August 19th, 20th and 21st. The senate chamber and the hall of the representatives have been tendered to the Association, and preparations are being made to give the members a hearty reception. The railroads entering Nashville will carry delegates and members to and from the meeting at half fare. Probably the same favor will be extended by the railroads throughout the country. It is hoped that a full representation will be present. The National Normal School Association and National Association of School Superintendents, will meet at the same time.

GREECE.—In 1835, there were in all Greece only 17 primary schools, with 721 pupils; 21 secondary schools, with 2,528 pupils; and 3 incomplete gymnasiums. In 1866 these had increased to 942 public schools for boys, with 44,000 pupils, and 39 private schools, with over 5,000 pupils; 125 public schools for girls, with 8,481 pupils, and 41 private schools, with 2,000 pupils; and other schools with an attendance of 8,600. There were, besides, 123 public secondary schools, with nearly 7,000 scholars and 294 teachers; 6 private schools of the same class for boys, with 250 scholars, and 6 for young ladies, with an attendance of 680; and 16 gymnasiums, with 1,900 students and 100 professors. The total number receiving instruction in the schools was 76,000. The University of Athens has 1,200 students and 62 professors.

SYRIA.—The desire for the education of the native Syrian women has now spread to Damascus, and many influential Greeks, Roman Catholics, and Jews have united in a petition to the Ladies' Syrian Education Society, entreating them to extend their operations to this, the most ancient city in the world. At Mrs. Bowen Thompson's recent visit to Damascus she was waited on by a deputation of upwards of fifty Greeks, several priests, many Jews and even Moslems, entreating her to open an English Girls' School for the Damascenes similar to that at Beirut. As a proof of their earnestness, many put down their names as subscribers for the free admission of the poorer girls. They are convinced that the foundation of the moral and social improvement of the community must be laid in the education of the women: and they have seen the good effects of the training in the English schools established at Beirut and Lebanon.