

VI. Find the L. C. M. of all the composite numbers from 1 to 20 inclusive.

VII. If I had \$400 more, I could pay a debt of \$1,500 and have \$37 over; how much have I?

VIII. A man walks at the rate of 3 miles an hour; how long would it take him to go round a field 120 rods long and 80 rods wide?

IX. A man having 500 acres of land divided it into portions of 16 ac., 3 roods, 17 sq. po., 19 sq. yds., each, and sold 17 of these portions; how many acres, &c., had he left?

X. When 98 mls., 7 fur., 13 po., 3 yds., 2 ft, 8 in., is repeated 87 times, what is the result?

Value 100 marks—10 for each question.

(9) *Drawing*.—What is an ellipse?

What is a simple curve, and how does it change its direction? Describe the compound curve and also the reversed curve. How is the square to be divided into 12 equal parts, and what forms will we then have? Name the curves forming the sides of a pitcher? Describe the method of drawing a square. Having drawn a square and its diagonals, name the angles. Compare the oblong and square. When are lines said to be parallel? What should be done before drawing the diameters of a square? Value 20 marks.

(10) *Music*.—Write a major scale in the key of G, with proper signature; also key of D and key of C. Transpose the following [an easy tune set in the key of C, to the] key of G, and write the Italian letters for the notes. Value 20 marks.

ARITHMETIC AND MENSURATION.

SECOND CLASS CERTIFICATES, JULY, 1872.

1. Prove the rule for finding G. C. M. of two numbers, Text Book.

2. In the *Globe* of 21st April, gold is quoted at 111¼. Find discount % on greenbacks.

Solution:—

$$\begin{aligned} 111\frac{1}{4} \text{ greenbacks} &= 100 \text{ gold.} \\ 100 &= 89\frac{7}{8} \end{aligned}$$

i. e., \$1 greenbacks is only worth 89⅞ c. gold; ∴ 100 — 89⅞ = 10⅛ % discount.

3. I invest \$13,450 in stock of Bank of Commerce at 134½, the half-yearly dividends being 4½ %. Find my annual income from the investment.

Solution:—

$$\begin{aligned} \$134\frac{1}{2} &\text{ gives } \$9 \text{ income per annum.} \\ \$13,450 &\text{ " } \$900 \text{ " " " " } \end{aligned}$$

4. A farmer sold his crop of wheat in 1871 for 8% more than he obtained for his crop of the preceding year; he received for both crops \$2,600; how much did he get for his crop of 1870?

Solution:—

One crop would sell for 100, the other for 108; ∴ the two would sell for 208.

$$208 = \$2,600, \text{ or } 100 = \$1,250.$$

5. Reduce to simplest form

$$\frac{3\frac{3}{4} \quad 5\frac{3}{4} - 1\frac{1}{3}}{6\frac{1}{2} \quad 5\frac{3}{4} + 1\frac{1}{3}} \times \frac{5\frac{2}{6}}{3\frac{2}{6}} - 3\frac{2}{6}$$

Solution:—

$$\frac{15}{26} + \frac{91}{20} \div \frac{139}{200} \times \frac{139}{26} - 3\frac{2}{6} = \frac{15}{26} + \frac{91}{26}$$

$$= \frac{107}{26}$$

6. A grocer has three kinds of tea, costing 30, 45 and 60 cents a lb. respectively; what quantities of each must he take to form a mixture of 144 lbs. worth 40 cents a lb.?

Solution:—

	c.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
	30	10	10	1	2	3	72
40c.	45	20		2		2	48
	60		5		1	1	24