JULY EXAMINATIONS, 1880.

THIRD CLASS TEACHERS.

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1. Examine the statement "Division is a short method of Subtraction." Apply your answer to illustrate the following examples: (1) Divide \$48 by \$16. (2) Divide \$48 by 16. Divide \$48 among 16 boys.

2. Explain clearly the principles involved in finding the sum of two fractions.

Simplify

$$\tfrac{1}{3}\left(3\tfrac{1}{5}+1\tfrac{1}{4}\right) \text{ of } £1 + \tfrac{1}{4} \text{ of } \frac{1\tfrac{1}{8}-\tfrac{1}{8} \text{ of } 1\tfrac{1}{6}}{\tfrac{1}{10} \text{ of } 3\tfrac{1}{3}+\tfrac{1}{7}\tfrac{3}{2}} \times .95 \text{ of } 5s. + \frac{2.1}{.012}d.$$

3. What is the square of a number? The square root?

Explain why, in extracting the square root of a number, you mark off the number into "periods of two figures each."

Simplify $(3\sqrt{32}-2\sqrt{28}) \div (\sqrt{32}-\sqrt{28})$.

4. Define *ratio*, *proportion* and *mean proportional*.

The quantity of saline matter in sea-water is ·036 of the whole weight, and of this weight ·061 is magnesia. Find the number of grains of magnesia in a cubic foot of sea-water, supposing 32 cubic feet of it weigh 2000 lbs.

5. Shew that "Bank" discount exceeds "True" discount by the simple interest on the True discount.

If \$6 be allowed as true discount on a bill of \$150 having a certain time to run, what would be the discount if the bill had twice as long to run?

6. *A* and *B* form a partnership, *A* supplying 25 per cent. more capital than *B*. At the end of the year *A* withdraws 60 per cent. of his capital, and *B* withdraws 40 per cent. of his; at the end of two years there is a gain of \$3383.50 to be divided. How much does each receive?

7. A merchant bought 350 yards of silk and 1470 yards of lustre, the price per yard of the lustre being 30 per cent. that of the silk; he sold the silk at a gain of 35 per cent., and the lustre at a loss of $33\frac{1}{3}$ per cent., and lost on the whole \$39.20. Find the cost price of the silk per yard.

8. An agent sold a consignment of flour for \$4800, and invested the proceeds (less his commission on both transactions) in the purchase of tea, receiving on the latter purchase 4 per cent. on the amount invested. His commission on both transactions being \$300, find his rate of commission on the sale of the flour.

9. Find to six decimal places the average of $2\frac{1}{3}$, 2.37, $3.00\dot{6}$, 0, $2.97\frac{1}{7}$, and $3.5\dot{1}\dot{6}$.

10. There is a garden-plot in the form of a trapezoid, whose two parallel sides are 40 yards and 50 yards respectively, the other sides being respectively 30 yards and 24 yards. Shew that the perpendicular distance between the parallel sides is $\frac{24}{5}\sqrt{11}$.