University of the State of New York.

SPECIAL PRELIMINARY EXAMINATION.

ARITHMETIC.

SATURDAY, March 8, 1890—Time, 9:30 A. M. to 12:30 P. M., only.

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100 credits, necessary to pass, 75.

1. Define and illustrate by an example: abstract number; prime number; divisor; improper fraction..................... 16

2. To what terms in division do multiplier and product correspond?.. 4

3. Subtract $\frac{1}{3}$ of $\frac{9}{10}$ from $\dfrac{8\frac{2}{3}+2\frac{1}{4}}{4\frac{1}{5}}$ 8

4. Divide 0.0144 by 4800; multiply the quotient by 6.004; and extract the square root of the product............... 8

5. How many steps of $2\frac{1}{2}$ feet each would a man take in walking a mile?.................................. 4

6. How many times can a box 6 inches long, 4 inches wide, and 4 inehes deep, be filled from a bin 7 feet long, 2 feet wide, and 3 feet deep? 6

7. How much will it cost to carpet a room 12 feet wide and $13\frac{1}{2}$ feet long, with carpet $\frac{3}{4}$ yard wide at 90 cents a yard?........ 4

8. A bin that holds 100 bushels is 8 feet long and 4 feet wide; how deep is it?.................................. 6

9. If a railroad train move at the rate of 57 miles an hour, what per cent of an hour does it occupy in running one mile?...... 4

10. If $\frac{2}{9}$ of a yard of cloth cost \$1.40, how much will $\frac{3}{4}$ of a yard cost? (Solve by analysis and give the analysis in full.)........ 4

11. At what price must goods that cost \$11.20 be marked in order to abate 5 per cent and yet make 20 per cent gain?..... 4

12. Find the proceeds of a note for \$1,800 payable in 60 days at 6 per cent, discounted at bank 4

13. How much will it cost at $\frac{4}{5}$ per cent to insure a factory valued at \$21,000 for $\frac{5}{7}$ its value?....................... 4

14. A house valued at \$8,000 rents for \$570. What per cent does it pay on the investment, if repairs and taxes cost \$130?.. 4

15. A, B, C hired a farm together for \$175, of which A paid \$75, B \$60, C \$40. They raised 250 bushels of wheat. How much was the share of each? 6

16. If 18 horses eat 128 bushels of oats in 32 days, how many bushels will 12 horses eat in 64 days? (Solve by proportion.) 4

17. What is involution? Give an example of it........... 4

18. From 24 meters take 5 centimeters, and write the result in words... 6