195TH HIGH SCHOOL EXAMINATION

ADVANCED ARITHMETIC

Tuesday, June 16, 1908 — 9.15 a. m. to 12.15 p. m., only

Answer eight questions.

1 Multiply 25 by 63 mentally, using a short method. Write in words a full explanation and demonstration of the process used.

2 Define greatest common divisor, least common multiple. Find the prime factors of *each* of the following numbers: 2024, 3036, 5060. Select the factors of these numbers that when combined will produce (*a*) the greatest common divisor, (*b*) the least common multiple.

3 A man working by the hour is obliged to work 10 hours a day after reduction in his wages, in order to earn as much as he earned in 8½ hours before the reduction; find the per cent of the reduction. Give explanation.

4 If the diameter of the driving wheels of a locomotive is 2.4 meters, how many revolutions will the wheels make in running 5.3 kilometers?

5 If a coal dealer buys coal at $5 a ton of 2240 ℔, and sells it at $6 a ton of 2000 ℔, what is his per cent profit?

6 A note for $350 due in one year, with interest at 4%, was given December 16, 1907; find the present worth of this note today, assuming money to be now worth 6%.

7 A note for $1575, with interest at 4%, was given August 15, 1907; $25 was paid on the note November 15, 1907 and $10 May 1, 1908. How much is due on the note today?

8 A cast iron pipe 10 feet long is 1 foot in diameter and 1 inch thick; find the weight of this pipe, assuming that a cubic foot of cast iron weighs 450 ℔.

9 The entire distance around a rectangular field is 400 rods, the length of the field is 2½ times its width; find the value of the field at $65 an acre.

10 A bin is 8 feet long, 6 feet high, 4 feet wide at the top and 3 feet wide at the bottom; how many bushels of grain will the bin hold?

11 Find correct within one inch the hight of a point on the side of a house that will be reached by a ladder 30 feet long, when the foot of the ladder is placed 8 feet from the building.

12 A man deposits $25 in a savings bank January 1, 1907 and a like amount the first of each month up to and including January 1, 1908. The bank allows interest at the rate of 3½ per cent per annum, payable July 1 and January 1, on all sums that have been on deposit one month or more. What is the balance of the account January 1, 1908?