194TH HIGH SCHOOL EXAMINATION

ADVANCED ARITHMETIC

Tuesday, January 28, 1908 — 9.15 a. m. to 12.15 p. m., only

Answer eight questions, selecting at least one from each group. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans.

Group I 1 In subtracting one simple number from another, if a figure in the subtrahend exceeds the corresponding figure in the minuend, add 10 to that figure in the minuend and add 1 to the next left hand figure in the subtrahend before subtracting. Explain the underlying principle in this process.

2 If any even number is divisible by 3, it is also divisible by 6. Prove.

3 Find the greatest common divisor and the least common multiple of 1976, 2964, 3952. Show that the greatest common divisor of any two numbers is a divisor of their difference.

Group II 4 Divide $1650 between A, B and C so that A shall have $\frac{2}{3}$ as much as B, and A and B together shall have $\frac{1}{2}$ as much as C.

5 If the use of $3750 for 8 months is worth $68.75, what is the sum whose use for 2 years 4 months is worth $250?

6 A man having £29 7s 6d sterling, used 3$\frac{1}{2}$% of it; find the sum remaining.

Group III 7 A has a farm valued at $7945, which pays him 5% on the investment. Through a broker, who charges him $25 for his services, he exchanges the farm for insurance stock at 110; his income for the first year is thus increased $178.75. What dividend does the stock pay?

8 In a school district valued at $967,228 a tax of $5762.64 is to be raised; if a man's assessment is $1700 find the amount he should pay the collector, including 1% fees.

9 A man gave a 6% mortgage for $500 April 1, 1905. April 1, 1906 he paid $200; October 1, 1906, $150; April 1, 1907, $100. Find the amount due today.

Group IV 10 A cylindric vessel 2 decimeters deep and 2 decimeters in diameter is full of water. An iron ball whose radius is 1 decimeter is placed in the vessel; find the number of liters of water that will remain.

11 A globe is 6 decimeters in diameter; find the diameter of another globe of half the volume.

12 What fraction of a round log of uniform thickness is the largest squared stick which can be cut out of it?