

High School Department

159TH EXAMINATION

ADVANCED ARITHMETIC

Monday, June 12, 1899—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but no more. If more than 10 are answered only the first 10 answers will be considered. Give each step of solution, indicating the operations by appropriate signs. Use cancelation when possible. Reduce fractions to lowest terms. Express final result in its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

- 1 Define *quinary scale, repetend, draft, reciprocal, true discount.*
- 2 Find the product of 376.259 by 2.6457 to three decimal places. Prove by division, using contracted methods in both cases.
- 3 Find in kilograms the weight of the water that fills a cylindrical tank 3 meters deep and 15 decimeters in diameter.
- 4 On what invariable unit does the length of the standard yard of England depend? How is this yard determined?
- 5 State the equivalent for \$100 United States gold in the money of (a) England, (b) France, (c) Germany. Write the table of money for each of the countries mentioned.
- 6 Find in millimeters the diameter of a solid sphere of lead weighing 10 kilograms. (Specific gravity of lead = 11.35.)
- 7 A ship's chronometer set at Greenwich at noon June 1 loses $\frac{3}{4}$ seconds a day; at noon November 20, the chronometer indicates 4 hours 35 minutes past noon. Find longitude of the ship.
- 8 The altitude of a right circular cone is 12 inches, and the diameter of its base is 10 inches; find the volume of a similar cone whose slant height is 26 inches.
- 9 A dry-goods merchant marks a piece of silk at 50% above cost price and sells it at \$2.40 a yard, which is a discount of 20% on marked price; find cost price and gain per cent.
- 10 A speculator buys 100 shares of stock at $87\frac{1}{2}$ and sells them at $89\frac{1}{4}$, brokerage $\frac{1}{4}$ % in each case; find his entire gain.
- 11 Find the present worth of a debt of \$600 due December 1, 1899, money being worth 5%.
- 12 A merchant buys goods on credit January 10 as follows: \$200 due in 3 months, \$500 due in 4 months, \$350 due in 2 months; find the equated time of payment.
- 13 W. Brown & Co., of London, ship 200 cases of cutlery, at £4, 10 s. a case, to Brooks Bros., New York, who draw at sight, June 10, 1899, on Wood & Robson, their London agents, to settle the account. Write the bill of exchange and find its cost, exchange being quoted at 4.87 $\frac{1}{4}$.
- 14 Find the 12th term of the series 32, 24, 18, etc.
- 15 On a note for \$3500 at 5%, dated Sept. 1, 1897, the following payments have been made: Jan. 1, 1898, \$700; May 18, 1898, \$50; Oct. 27, 1898, \$1500. Find the amount due to-day.