New York State Education Department

209TH HIGH SCHOOL EXAMINATION

ADVANCED ARITHMETIC

Tuesday, June 17, 1913—9.15 a. m. to 12.15 p. m., only

Write at top of first page of answer paper (*a*) name of school where you have studied, (*b*) number of weeks and recitations a week in advanced arithmetic. The minimum time requirement is two recitations a week for a school year or four recitations a week for half a school year.

Answer eight questions. Credit will not be granted unless all operations (except mental ones) necessary to find results are given; simply indicating the operations is not sufficient.

1 Express to *five* places of decimals: $\frac{(\frac{2}{3}-\frac{1}{10})\times(3+\frac{2}{5})}{(1\frac{1}{2}+\frac{5}{7})+(3-1\frac{5}{9})\times 5}$

2 Divide 4256 by $33\frac{1}{3}$.

Explain the following method of performing this short process division: $3\times 42+1=127$ quotient

$56-33\frac{1}{3}=22\frac{2}{3}$ remainder

3 How long does a train 88 yards long, moving at 45 miles per hour, take to pass over a bridge 110 yards long?

4 A map is drawn on the scale of 1 foot=1 mile; express as the decimal of a square inch the size, on this map, of a field that contains one acre.

5 The first term of an arithmetical progression is 4, the common difference is 5 and the number of terms is 7; what is the sum of the series?

6 A garden is 43.6 meters long, 27.9 meters wide; if a rainfall of 16 centimeters is recorded, how many kilograms of water fell on the garden?

7 The lengths of the circumferences of two concentric circles differ by 6 inches; compute the width of the ring to *four* places of decimals.

8 A note for $500, payable in 90 days, with interest at 6%, was given April 28, 1913; if the note is discounted today at 6%, find the bank discount and the proceeds.

9 A note for $475.50, with interest at 6%, was given April 1, 1909. This note was indorsed as follows: November 25, 1909, $50; June 10, 1910, $12.75. Find the amount due today.

10 A solid metal ball, 6 inches in diameter, weighs 32 pounds; another solid ball, 4 inches in diameter, of the same metal, is melted with the first one and both are cast into a ball. Find the diameter and the weight of this ball.

11 A grocer insures 200 bbl. of flour for $66\frac{2}{3}\%$ of their cost at $1\frac{3}{4}\%$, paying a premium of $10.50; at what price per bbl. must he sell the flour in order to gain $16\frac{2}{3}\%$ on the cost, exclusive of the premium?