The University of the State of New York

299TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, January 29, 1947 — 9.15 a. m. to 12.15 p. m., only

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Fill in the following lines:

Name of pupil.....Name of school.....

Instructions

Do not open this sheet until the signal is given.

Answer all questions in part I and five questions from part II.

Part I is to be done first and the maximum time to be allowed for this part is one and one half hours. Merely write the answer to each question on the line at the right; no work need be shown.

If you finish part I before the signal to stop is given, you may begin part II. However, it is advisable to look your work over carefully before proceeding to part II, since *no credit will be given any answer in part I which is not correct and reduced to its simplest form.*

When the signal to stop is given at the close of the one and one half hour period, work on part I must cease and this sheet of the question paper must be detached. The sheets will then be collected and you should continue with the remainder of the examination.

Part I

Answer all questions in this part. Write the answer to each question on the dotted line at the right. Each question has 2 credits assigned to it; no partial credit will be allowed. Each answer must be reduced to its simplest form.

1 Add 4326; 5093; 9846; 6410; 3864 1.....

2 Divide 23,256 by 72 2.....

3 Subtract $483.46 from $500 3.....

4 Find the sum of $6\frac{1}{4}$; $3\frac{3}{8}$; $\frac{1}{2}$ 4.....

5 Multiply 125 by $2\frac{3}{5}$ 5.....

6 Write .0625 as a per cent. 6.....

7 At the rate of $2\frac{3}{4}$ bushels of seed per acre, how many bushels of seed will it take to plant 28 acres? 7.....

8 A $1200 bond pays $60 interest each year. What is the rate of interest on the bond? 8.....

9 If you buy 10 yards of muslin at 46 cents a yard, how much change should you receive from $5? 9.....

10 At 75 cents an hour, how long will it take to earn $15? 10.....

11 In a recent basketball game Harry tried 24 shots at the basket and made 9 of them. What per cent of his shots did he make? 11.....

12 If 12 is 40% of a number, what is the number? 12.....

13 Which of these Roman numerals is larger, XL or LX? 13.....

14 Find the value of x in the proportion $3 : 6 = x : 18$ 14.....

15 To change inches to feet, would you *multiply* the number of inches by 12 or *divide* the number of inches by 12? 15.....

16 If the temperature dropped from 12° above zero to 4° below zero, how many degrees did the temperature drop? 16.....

17 Find the volume of a grain bin that is 12 feet long, 9 feet wide and 8 feet high. 17.....

18 What is the cost of 8 pounds of cabbage at 3 pounds for 25 cents? 18.....

19 What will be the annual premium on a $2500 insurance policy at the rate of $16.40 per $1000? 19.....

20 If a boy's age is x years, express his age 12 years from now. 20.....

21 If John has x dollars and his sister Ann has one half as many, express algebraically the number of dollars Ann has. 21.....

22 If one side of a rectangle is 4 inches, what is the length of the opposite side? 22.....

23 If the sides of a triangle are 4 inches, 7 inches and 10 inches, what is the perimeter of the triangle? 23.....

24 Write the formula for finding the area of a triangle. 24.....

25 How many inches are there in the diameter of a circle having a circumference of 44 inches? 25.....

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Write at top of first page of answer paper to part II (*a*) name of school where you have studied, (*b*) grade of work completed in mathematics.
The minimum requirement is the completion of the work of the eighth grade in mathematics.

Part II

Answer any five questions from this part. No credit will be allowed unless all necessary operations are given. Reduce each result to its simplest form and mark each answer *Ans.*

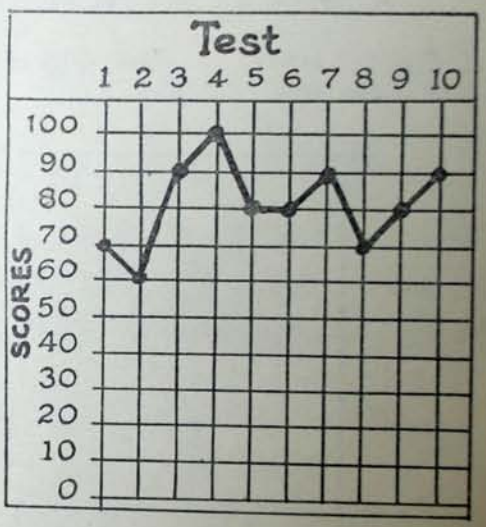
26 For a recent school year a school district purchased 240 tons of coal at $12 per ton, less a discount of 12½%.

a What was the actual cost of the coal per ton? [2]

b During the year it was necessary to burn 228 tons of the coal. How much did the coal cost that was used to heat the building? [4]

c What per cent of the coal was used? [4]

27 The graph below shows the scores made by Paul Jones on 10 arithmetic tests.



a What was his score on the third test? [2]

b On what test was the lowest score made? [2]

c On what test was the highest score made? [2]

d Give the numbers of *three* tests on which the scores were the same. [2]

e Is his average above or below 75? [2]

28 Answer *each* of the following:

a If you know the length and width of a floor, how do you find the area? [2]

b If you know the radius of a circle, how do you find the area? [3]

c If you know the area of a square, how do you find the length of one side? [2]

d If you know how many miles a boy rode his bicycle and the number of hours it took him to make the trip, how do you find his average speed per hour? [3]

29 During December Jane sold 52 boxes of Christmas cards at $1 a box and 40 packages of seals at $.25 a package. She was required to pay the company $37.20 and was permitted to keep the remainder as her profit.

a What was the amount of the total sales? [3]

b What was her amount of profit? [2]

c What was her per cent of profit? [5]

30 A family had been paying \$100 a month rent for a heated apartment in the city. They moved to the country, where they paid \$65 a month rent for a house. In the country home they used 10 tons of coal a year at \$16 a ton. Traveling from the country to the city daily to work cost the father an extra \$110 a year.

a What was the amount of rent for a year in the city? [2]

b What was the amount of rent for a year in the country? [2]

c What was the total expense in the country for coal and travel? [3]

d In one year how much less did it cost this family to live in the country than in the city? [3]

31 A salesman worked on a weekly salary of \$80 with an added commission of 5% on all sales over \$500. If his sales for one week amounted to \$750, what was his total salary for the week? [10]

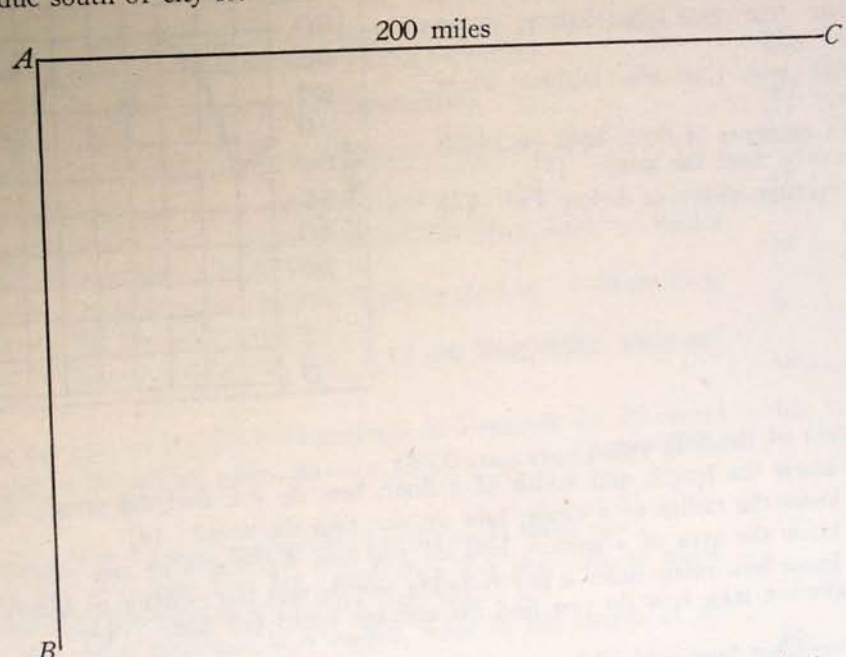
32 *a* Solve the following equation for x: [2]

$$3x - 4 = 11$$

b In the formula $A = \frac{bh}{2}$, find A when b equals 4 and h equals 3. [2]

c Jane and Mary together earned \$120 last summer. Mary earned three times as much as Jane. Write the algebraic equation to be used to determine how much *each* earned. [6]

33 A, B and C are the locations of three cities on a map. City C is 200 miles due east of city A and city B is due south of city A.



a With the help of a ruler find the number of miles represented by one inch on the map. [4]

b Find the distance from city A to city B. [2]

c Find the shortest distance from city B to city C. [4]