The University of the State of New York

306TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, June 22, 1949 — 9.15 a. m. to 12.15 p. m., only

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.

MATHEMATICS (Preliminary)

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 Find the difference between 3012 and 976 1

2 Multiply 891.5 by 7.6 2

3 Divide 23188 by 62 3

4 20 is 10% of what number? 4

5 What will be the cost of 50 feet of hose at $\$.12\frac{1}{2}$ per foot? 5

6 If a man pays a water bill of $6.75 every three months, how much would he pay in one year? 6

7 Add $7\frac{3}{8}$, $8\frac{1}{4}$, $5\frac{1}{2}$ 7

8 Harry paid $18 for a used bicycle. He spent $4.50 for repairs and sold the bicycle for $25. What was the amount of profit? 8

9 What is the cost of a 5-pound chicken at $.49 per pound? 9

10 How many quarts are there in 4 gallons? 10

11 What fractional part of a year remains after June 30? 11

12 How many cubic inches are there in a box 14 inches long, 8 inches wide and 2 inches deep? 12

13 What is the cost of 32,000 pounds of fertilizer at $17.50 per ton? 13

14 Find the interest on $1200 for four months at 6%. 14

15 The two rails of a railroad track are (perpendicular, diagonal, parallel) to each other. 15

16 Find the value of x in the equation: $3x + 10 = 40$ 16

17 What is the premium on a fire insurance policy for $8000 if the rate is $.42 per $100? 17

18 John worked from 8:00 a. m. until 11:30 a. m. at the rate of $.60 per hour. How much did he receive for his work? 18

19 If a car travels 357 miles and uses 21 gallons of gasoline, how many miles does it average per gallon of gasoline? 19

20 What fractional part of a yard is 9 inches? 20

21 If a baseball team played 24 games and won 18 of them, what per cent of the games played did the team win? 21

22 If one side of a square is 12 inches long, what is the area of the square? 22

23 If $a = 4$ and $b = 6$, what is the value of $a + 2b$? 23

24 At $12 per square yard, what is the cost of a rug that is 12 feet long and 9 feet wide? 24

25 Mary receives $1.00 weekly as an allowance. If she saves 35 cents of it, what per cent does she save? 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 Complete the following form by: (*a*) adding your name as the purchaser in the correct place [1], (*b*) figuring the cost of each item [5], (*c*) finding the total amount of the bill [2], (*d*) receipting the bill [2].

SMITH'S GROCERY STORE
John J. Smith, Proprietor
OURTOWN, N. Y.

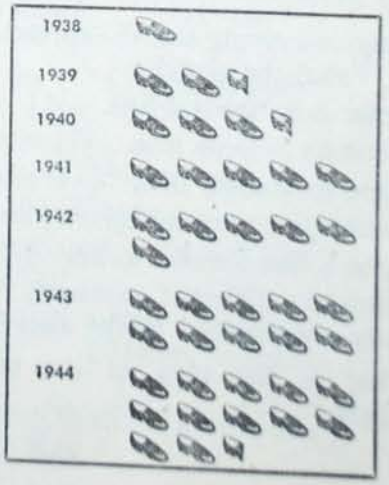
June 22, 1949

Sold to: .....

1 dozen eggs @ 69 cents			
5 pounds of potatoes @ 6 cents			
$\frac{1}{2}$ pound of butter @ 68 cents			
$4\frac{1}{2}$ pounds of meat @ 50 cents			
2 quarts of milk @ 21 cents			

27 An eighth grade class purchased 1000 pencils for $25. They sold the pencils for 5 cents each.
a What was the total amount received from the sale of pencils? [3]
b Using the cost, find the per cent of profit. [7]

28 The accompanying pictograph shows the growth in production of a shoe company for the period 1938 to 1944. [Each symbol represents 20,000 pairs of shoes.]



Using the pictograph, answer the following:

a How many times as many shoes were produced in 1943 as in 1938? [3]

b How many pairs of shoes were produced in 1942? [3]

c How many more shoes were produced in 1944 than in 1943? [4]

29 A certain class wanted to raise money to purchase a radio costing $34.50, so they gave an operetta. They sold 60 adult tickets at 60 cents each and 76 children's tickets at 30 cents each. The expenses were as follows: Federal tax, 20%; costumes, $4.50; tickets and programs, $2.50; other, $3.81.

a What was the income from the sale of tickets? [3]

b What was the total expense of giving the operetta? [5]

c Did they make enough profit to purchase the radio? [2]

30 Write the formula for *each* of the following:

a the volume V of a room with a length l, a width w and a height h [2]

b the average rate of speed per hour r with the distance traveled d and the time t [2]

c the average weight a of five boys with a total weight t [2]

d the radius r of a circle with a diameter d [2]

e the area A of a triangle with a base b and an altitude h [2]

31 Mr. Chase is a salesman for a certain store. He receives a salary of $27.50 per week, plus a commission of 5% on all sales over $300. Last week he sold $1275 worth of goods.

a How much commission did he receive? [6]

b What were his total earnings for the week? [4]

32 A man who earns $375 a month invests 10% of his salary in United States Treasury Savings Bonds.

a How many bonds which cost $18.75 each can he buy in one year? [4]

b If the value of each bond increases $33\frac{1}{3}\%$ in ten years, how much will each bond be worth at the end of that time? [6]

33 *a* The formula for the circumference of a circle is $C = 2\pi r$. Find the value of C if $\pi = \frac{22}{7}$ and $r = 14$ [2]

b Prove that in the following equation $n = 2$

$$6n + 5 = 2n + 13$$ [2]

c Alfred, Dick and Paul decided to run a refreshment stand during their summer vacation. Alfred contributed twice as much money toward the expenses as Dick, while Paul contributed as much as Alfred and Dick together. At the end of the summer their total profit was found to be $180. They agreed to divide the profit in proportion to the amount each contributed. Let x equal the amount that Dick contributed.

(1) In terms of x how much did Alfred contribute? [1]
(2) In terms of x how much did Paul contribute? [1]
(3) Write the equation for solving the problem. [2]
(4) How much did Dick receive for his share? [2]

34 The accompanying sketch represents the end of a barn. From the sketch:

a Name a horizontal line. [1]

b Name an oblique line. [1]

c Name a vertical line. [1]

d Name a line perpendicular to line BD. [1]

e Name a line parallel to line AE. [1]

f Name *two* different geometric figures that are represented in the sketch. [2]

g What is the area of the end of the barn? [3]