

The University of the State of New York

290TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, January 19, 1944 — 9.15 a. m. to 12.15 p. m., only

Fill in the following lines:

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

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 Add 426; 7573; 85; 359 1.....
- 2 From 27.8 subtract 15.35 2.....
- 3 Divide 72 by 4.5 3.....
- 4 $3\frac{1}{2} \times 2\frac{1}{2}$ 4.....
- 5 From $27\frac{1}{8}$ subtract $14\frac{1}{4}$ 5.....
- 6 Find the product of 793 and 68 6.....
- 7 Write $\frac{1}{2}$ as a decimal 7.....
- 8 What is the length of one side of a square whose area is 121 square inches? 8.....
- 9 Which of these three decimals is the largest?
.05; .005; .0005 9.....
- 10 If a boy purchases five 25-cent war stamps each week, how many weeks will it take him to fill a stamp book for a war bond costing \$18.75? 10.....
- 11 How many points will be needed to purchase $2\frac{3}{4}$ pounds of meat at eight points a pound? 11.....
- 12 The weights of six boys are: 86 lb., 92 lb., 97 lb., 105 lb., 113 lb. and 83 lb. What is their average weight? 12.....
- 13 Mr Brown's income was \$42 per week. He received an increase of \$6.30. What is the per cent of increase? 13.....
- 14 Two angles of a triangle are 90 degrees and 60 degrees. How many degrees does the third angle contain? 14.....
- 15 One gallon contains 231 cubic inches. How many gallons will a tank hold that is 22 inches long, 14 inches wide and 12 inches high? 15.....
- 16 A tax rate of \$1.45 on \$100 is the same as what rate on \$1000? 16.....
- 17 The four stamps left in your War Ration Book are worth 8, 5, 2 and 1 points respectively. Which of the four stamps should you use to make 11 points? 17.....
- 18 How much will a \$22.50 coat cost if it is on sale at 20% reduction? 18.....
- 19 If 1 inch represents 5 miles on a certain map, how many inches will represent 15 miles? 19.....
- 20 If 3 pencils cost x cents, represent the cost of one pencil. 20.....
- 21 If 5 pounds of sugar cost 35 cents, how much will 25 pounds cost at the same rate? 21.....
- 22 If a boy's age is x years, express his age 15 years from now. 22.....
- 23 What is the area of a triangle having a base of 8 inches and an altitude of 6 inches? 23.....
- 24 The area of a rectangle is 108 square feet and the length is 12 feet. What is the width? 24.....
- 25 A man borrowed \$65 from the bank for one year. He paid \$3.90 in interest. What rate of interest was charged by the bank? 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 A boy sold the produce from his Victory garden as follows:

- 80 lb. of snap beans at 12¢ a lb.
- 36 lb. of peas at 15¢ a lb.
- 200 cucumbers at 3¢ each
- 37 bunches of beets at 10¢ a bunch
- 400 ears of sweet corn at 2¢ an ear

The only expenses he had were \$1.20 for seed and \$1.50 for fertilizer.

- a How much did he receive for his produce? [5]
- b What was his net profit? [3]
- c If he worked a total of 60 hours, how much did he receive per hour for his work? [2]

27 A farmer shipped 2000 bushels of potatoes to a commission merchant. The farmer paid \$160 for freight and \$80 for trucking. The potatoes were sold for \$2 a bushel by the merchant, who charged 4% commission.

- a How much money did the commission merchant receive for his services? [3]
- b How much money did the commission merchant send to the farmer? [2]
- c After deducting the cost of freight and trucking, how much did the farmer receive per bushel for the potatoes? [5]

28 A bomber supplied with 2000 gallons of gasoline carried a bomb load of eight long tons. It completed a mission over a target 625 miles from its air base. [1 long ton = 2240 lb.]

- a How many miles did the bomber fly from the time it left until it again reached its air base? [1]
- b Find the number of pounds of bombs carried for each gallon of gasoline provided. [4]
- c How many miles to the gallon, correct to the nearest hundredth, did the gasoline supply allow for? [5]

29 A merchant could insure his stock of goods against loss by fire for \$32,000, at a rate of \$2 per \$100. If he installed a sprinkler system, his reduced rate would be \$1.65 per \$100.

- a What is the annual cost of insurance without the sprinkler system? [3]
- b What is the annual cost of insurance with the sprinkler system? [3]
- c How much could the merchant save over a 10-year period by installing a sprinkler system? [4]

30 The following picture graph represents the number of eggs produced by a flock of hens. Each symbol represents one dozen eggs.

First day 0 0 0 0 0 0 0 0 0
Second day 0 0 0 0 0 0 0 0 0 0 0 0
Third day 0 0 0 0 0 0 0 0 0

- a What was the per cent of increase from the first to the second day? [7]
- b What was the average number of dozens of eggs produced each day? [3]

31 Mr Lester wished to have a cellar dug 30 feet long, 18 feet wide and 9 feet deep. Brown Construction Co. offered to do the job at a price of \$165. Smith Co. offered to do the job at a rate of \$.90 per cubic yard. Which company would do the job at the lower cost and how much lower? [10]

32 Answer *a*, *b* and *c*:

a Solve *each* of the following equations:

(1) $6x - 3x = 15$ [2]

(2) $\frac{x}{3} = 6$ [2]

b Write the algebraic equation for *each* of the following:

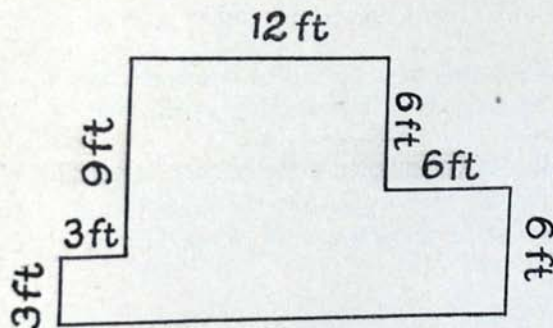
(1) A number increased by three equals eight. [2]

(2) Four times a certain number equals six. [2]

c If $a = 2$, $b = 3$ and $c = 4$, find the numerical value of the following:

$3a - 2b + c$ [2]

33 The following diagram represents the outline of a floor:



a What is the length of the longest side (the one at the bottom of the diagram)? [2]

b What is the total number of square feet in the floor? [4]

c How much would it cost to refinish the floor at \$1.25 a square yard? [4]