The University of the State of New York

314TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, January 23, 1952 — 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.

25

Part I

Answer all questions in Part I. Write the answer to each question on the line at the right. Each question counts 2 credits; no partial credit is allowed. Reduce each answer to its simplest form.

1 Add 736; 48; 402; 6389 1.....

2 Multiply 624 by $83\frac{1}{3}$ 2.....

3 Add $5\frac{3}{4}$; $2\frac{1}{2}$; $9\frac{3}{8}$ 3.....

4 Subtract $53.97 from $100 4.....

5 Divide 245.25 by 2.25 5.....

6 Divide 176 by $\frac{2}{7}$ 6.....

7 Which is larger: 42,000,000 or 42 billion? 7.....

8 A friend expected at 5:30 was 1 hour and 40 minutes late. At what time did he arrive? 8.....

9 Paul is 5 ft., 4 in. tall and Sam is 62 in. tall. Which boy is taller? 9.....

10 If you double the denominator of a fraction, do you increase or decrease the value of the fraction? 10.....

11 How much would you pay for 5 oranges at the rate of 60 cents a dozen? 11.....

12 On a three-hour bicycle trip a group of boys traveled 9 miles the first hour, 8 miles the second hour and 4 miles the third hour. How many miles per hour did the boys average? 12.....

13 If 14% of the stamps in a collection are domestic and the rest are foreign, what per cent are foreign? 13.....

14 Jane sold Christmas cards for a total of $150. Of this she received $60 as a commission. What was the rate of commission on her sales? 14.....

15 A girl had 4 library books that were 3 days overdue. Her fine was 3 cents a day for each book. How much was her total fine? 15.....

16 Find the interest on $200 for 30 days if the rate of interest is 6%. 16.....

17 A year's subscription to a weekly magazine costs $9.75. If a single copy sells for 20 cents, how much will a person save by taking a year's subscription instead of buying a single copy each week? 17.....

18 A man owns property assessed at $7000. If the tax rate is $25 per $1000 this year, what is the amount of the tax on his property? 18.....

19 In one day an organization raised $60, which was 25% of its Red Cross quota. What was the organization's quota? 19.....

20 What measurement is indicated by the arrow on the 6-inch ruler pictured below?

20.....

21 Which has the larger area, a square with a side of 10 feet or a circle with a diameter of 10 feet? 21.....

22 What does 8^2 equal? 22.....

23 How many degrees are there in each angle of an equilateral triangle? 23.....

24 The product of two numbers is 120. If one of the numbers is 8, what is the other number? 24.....

25 What is the value of x in the equation $3x + 4 = 16$? 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 In each of the following problems one necessary fact has been left out, and therefore the problem can not be solved. Add just enough information to *each* problem so that it can be solved, and then find the answer to the problem you have made.

a Bill's family took a week's trip by automobile. The automobile averaged 18 miles on a gallon of gasoline. How many gallons of gasoline were used on the trip? [3, 2]

b A rectangle is 10 feet long. Find the area. [3, 2]

27 Jack has borrowed $100 from a loan company for a period of 12 months. He is to repay this loan in 12 monthly payments of $9.82 each. He could have borrowed the money from a bank at an interest rate of 6% a year.

a What is the total amount that Jack must repay to the loan company? [2]

b Of this amount how much is charged for the use of the money? [2]

c What would have been the amount of interest charged by the bank on the $100 for the same period? [3]

d How much would he have saved in interest charges if he had borrowed the money from the bank? [3]

28 A salesman is paid a weekly salary of $60. In addition he receives a commission of 6% on all sales over $100,000 for the year. During the year 1951 his sales amounted to $141,000.

a How much did the salesman receive in commissions in 1951? [3]

b What was his total pay for the year? [4]

c What was his average monthly pay for the year? [3]

29 Each of the statements below lacks one of the following units of measure to complete its meaning: minutes, cubic feet, days, ounces, pounds, inches, square yards. Write the letters *a* to *e* on your answer paper and opposite *each* write the unit from the above list that most reasonably completes the corresponding statement.

a Mrs. Babcock purchased 15 ... of carpeting to cover her living room floor. [2]

b The amount of rainfall in a city during August was 2.3 .... [2]

c Tom said that there were 9,000 ... of air space in the average class room in his school. [2]

d A 5-cent candy bar weighs about $2\frac{1}{2}$ .... [2]

e Janet says that it generally takes her 8 ... to walk to school. [2]

30 Frank and his family took a 6-day motor trip. When they left home the speedometer on their car read 19,872 miles, and when they returned home it read 21,012 miles.

a How many miles did they travel on the trip? [2]

b How many miles did they average per day? [2]

c At an average cost of $3\frac{1}{3}$ cents per mile, what was the total cost for transportation? [2]

d If they averaged 15 miles per gallon of gasoline, how much did the gasoline for the trip cost at 27 cents a gallon? [4]

[OVER]

31 *a* (1) The perimeter of an equilateral triangle is the same as the perimeter of a square which has a side 8 in. long. If n represents one side of the triangle, which of the following equations would be used to find one side of the triangle?

(*a*) $3n = 8$ (*b*) $3n = 32$ (*c*) $\frac{n}{3} = 8$ [3]

(2) A team played 22 basketball games. It won 4 more games than it lost. If n represents the number of games it lost, which of the following equations would be used to find how many games it lost?
(*a*) $n - 4 = 22$ (*b*) $n + 4 = 22$ (*c*) $n + n + 4 = 22$ [3]

b Solve *each* of the following equations:

(1) $2n - 5 = 11$ [2]

(2) $\frac{n}{3} = 10$ [2]

32 Column A contains drawings of geometric figures. Column B lists names of geometric figures. Write the letters *a* to *j* on your answer paper. Opposite *each* letter write the number from Column B that stands for the name of the corresponding figure. [10]

Column A	*Column B*
a 	1 lines perpendicular to each other
b 	2 horizontal parallel lines
c 	3 vertical parallel lines
d 	4 acute angle
e 	5 obtuse angle
f 	6 circle
g 	7 cube
h	8 right triangle
i 	9 equilateral triangle
j 	10 rectangle
	11 cylinder

33 A coal bin is built in the form of a rectangular prism. The dimensions of the bin are 7′ x 10′ x 6′. The bin is level full of coal.

a How many tons of coal are there in the bin if a ton of coal occupies 35 cu. ft. of space? [6]

b How much would the coal cost at $14.75 per ton? [4]

FOR TEACHERS ONLY

M

INSTRUCTIONS FOR RATING
MATHEMATICS (Preliminary)

Wednesday, January 23, 1952 — 9.15 a. m. to 12.15 p. m., only

Use only *red* ink or pencil in rating Regents papers. Do not attempt to *correct* the pupil's work by making insertions or changes of any kind.

Part I

Allow 2 credits for each correct answer; no partial credit allowed. Each answer must be reduced to its simplest form.

(1) 7575
(2) 52,000
(3) $17\frac{5}{8}$
(4) \$46.03
(5) 109
(6) 56
(7) 42 billion
(8) 7 : 10
(9) Paul
(10) decrease
(11) 25¢ *or* \$.25
(12) 7
(13) 86% *or* 86
(14) 40%
(15) 36¢ *or* \$.36
(16) \$1.00
(17) 65¢ *or* \$.65
(18) \$175
(19) \$240
(20) $2\frac{5}{8}$ inches
(21) square
(22) 64
(23) 60° *or* 60
(24) 15
(25) 4

Part II

Do not allow credit unless all necessary operations are given. Each answer must be reduced to its simplest form. In a question consisting of several related parts, *a*, *b*, *c*, etc., if the answer for any part is incorrect, deduction should be made only for that particular part, provided succeeding parts have been correctly done on the basis of this incorrect answer.

26 Allow 10 credits as indicated:

a The number of miles in the trip is lacking. Any number may be supplied. [3 credits for supplying number, 2 credits for solving problem]

b The width of the rectangle is lacking. Any number may be supplied. [3 credits for supplying number, 2 credits for solving problem]

27 Allow 10 credits as indicated:

a \$117.84 [2 credits]
b \$17.84 [2 credits]
c \$6.00 [3 credits]
d \$11.84 [3 credits]

28 Allow 10 credits as indicated:

a \$2460 [3 credits]
b \$5580 [4 credits]
c \$465 [3 credits]

[OVER]

29 Allow 10 credits, 2 credits for each of the following:

a square yards
b inches
c cubic feet
d ounces
e minutes

30 Allow 10 credits as indicated:

a 1140 [2 credits]
b 190 [2 credits]
c \$38 [2 credits]
d \$20.52 [4 credits]

31 Allow 10 credits as indicated:

a (1) (*b*) [3 credits]
(2) (*c*) [3 credits]
b (1) $n = 8$ [2 credits]
(2) $n = 30$ [2 credits]

32 Allow 10 credits, 1 credit for each of the following:

a 8
b 1
c 7
d 5
e 11
f 4
g 10
h 3
i 6
j 9

33 Allow 10 credits as indicated:

a 12 [6 credits]
b \$177 [4 credits]