

The University of the State of New York

312TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, June 20, 1951 — 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 sum of: $.38$; 4.01 ; 37 ; 24.3 1.....
- 2 Subtract $6\frac{3}{4}$ from $9\frac{1}{2}$ 2.....
- 3 Divide 74.4 by $.024$ 3.....
- 4 Find the product of $10,000$ and $.045$ 4.....
- 5 Which one of the following numbers has the smallest value:
 $.2$; $.22$; $.02$; $.202$; $.022$? 5.....
- 6 Write in figures: four and one-half million. 6.....
- 7 If a class of sixteen pupils going on a field trip has $\$8.00$ to spend for lunches, how much money will each one be able to spend for lunch? 7.....
- 8 How many slices, each $\frac{1}{4}$ " thick, can be cut from an eighteen-inch piece of meat loaf? 8.....
- 9 After four pieces each 1 ft. 5 in. long were cut from a board, a piece 4 in. long remained. What was the original length of the board? 9.....
- 10 Write $2\frac{1}{2}\%$ as a decimal. 10.....
- 11 The scale of miles on a certain map is 1 inch = 50 miles. What is the distance in miles between two points that are $4\frac{1}{2}$ inches apart on the map? 11.....
- 12 An old-model electric toaster is marked at $\$22.50$. If you receive a 10% discount on the marked price, what will you have to pay for the toaster? 12.....
- 13 An incubator hatched 558 chicks from 600 eggs. What per cent of the eggs hatched? 13.....
- 14 What is the interest on a loan of $\$450$ for 60 days at 6% interest? 14.....
- 15 A man invests $\$2000$ and receives a yearly income of $\$100$. What is the rate of income on his investment? 15.....
- 16 If the last day of school is Friday, June 22 , and the first day of school in the fall is Tuesday, September 4 , how many days are there in the vacation period? 16.....
- 17 What is the ratio of 6 feet to 3 feet? 17.....
- 18 One day 6% of the pupils enrolled in a school were absent. If 42 pupils were absent, how many pupils were enrolled in the school? 18.....
- 19 The area of the floor of a square room is 144 square feet. What is the length of one side of the floor? 19.....
- 20 How far above the earth, to the nearest mile, is a plane flying at an altitude of $15,000$ ft.? 20.....
- 21 If the perimeter of an equilateral triangle is 12 inches, what is the length of one side? 21.....
- 22 A man drove 80 miles in 2 hours and then 100 miles in 3 hours. What was his average speed for the 5 hours? 22.....
- 23 How many half-pint bottles can be filled with milk from a 10 -gallon can of milk? 23.....
- 24 If y equals 6 , what is the value of $3y - 4$? 24.....
- 25 If a board is l inches long and a second board is 6 inches longer, what is the length of the second board in terms of l ? 25.....

MATHEMATICS (Preliminary)

Wednesday, June 20, 1951

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 The following pictogram represents the number of telephones in use in a certain city. Each complete symbol represents 20,000 telephones.



- How many telephones were in use in this city in 1945? [2]
- How many more telephones were in use in this city in 1945 than in 1935? [3]
- Find the per cent of increase in the number of telephones in use in 1950 over the number in use in 1930. [3]
- If it is estimated that 280,000 telephones will be in use in 1955, how many symbols should be used to picture this on the graph? [2]

27 A New York Central train leaves New York at 9:00 a. m. and arrives in Buffalo at 4:45 p. m. on the same day. The trip covers a distance of 435.9 miles.

- How many hours and minutes does the trip take? [3]
- What is the average number of miles traveled per hour? [Give answer to the *nearest mile.*] [7]

28 For refreshments on an eighth-grade picnic, the 30 pupils averaged four hamburgers on rolls each and two bottles of milk each. In addition they ate 7 cakes, costing 45 cents each, and 5 large bags of potato chips, costing 33 cents a bag. One pound of meat, costing 80 cents a pound, was enough to make 10 hamburgers, and the rolls cost 30 cents per dozen. The cost of the milk was 6 cents a bottle.

- What was the total cost of the food for the picnic? [8]
- What was each pupil's share of the cost? [2]

29 Tell how you would solve *each* of the following:

- If you know the number of yards of material you need to make a curtain and also the number of curtains of the same size that you wish to make, how can you find the number of yards of cloth you need to buy? [2]
- If you know the average savings of a boy per week, the number of weeks he saves his money and the cost at a summer camp per week, how do you find the number of weeks he can stay at camp on his savings? [3]
- If you know the selling price of a house and the per cent of commission charged by an agent for selling the house, how can you find the amount of commission the agent would receive? [2]
- If you know the cost of an article that you want to buy, the amount that you can pay in cash and also the amount of each monthly installment, how can you find the total number of months it will take to pay for the article? [3]

[3]

[OVER]

MATHEMATICS (PRELIMINARY) — *concluded*

30 Last year Mrs. Brown by working part time earned \$1100, which, when added to her husband's earnings, gave them a total income of \$6600 for the year.

- a How much did Mr. Brown earn? [2]
 b What per cent of the income did Mrs. Brown earn? [3]
 c Mr. Brown earned how many times as much as Mrs. Brown? [2]
 d If together they saved \$594, what per cent of their total earnings was saved? [3]

31 Directions: Copy on your answer paper the expressions in Column I and after *each* write the word or expression from Column II that matches it. [10]

Column I

- a a canceled check
 b three is to one
 c an acute angle
 d division of a line into 2 equal parts
 e payment to an insurance company
 f $D = rt$
 g an agreement to repay money borrowed
 h interest paid in advance on a promissory note
 i two lines that intersect at right angles
 j the sum of the sides of a geometric figure

Column II

- premium
 bank discount
 a proportion
 perpendicular lines
 an angle of more than 90°
 parallel lines
 receipt
 an angle of less than 90°
 perimeter
 bisection
 promissory note
 a ratio
 formula
 area

32 Mr. Jayne wants to insure his \$15,000 house for $\frac{4}{5}$ of its value. He can buy insurance for one year or for a period of three years. The rate is \$10 per thousand for a one-year policy or $2\frac{1}{2}$ times the yearly rate for a three-year policy.

- a For what amount does he want to insure his house? [3]
 b How much would he save in three years by taking a three-year policy rather than three one-year policies? [7]

33 a Under each of the following problems three equations are given. In *each* case select the equation that correctly represents the conditions of the problem and *state clearly in words* what the letter in the equation represents.

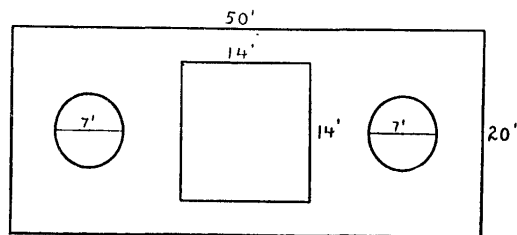
- (1) A man bought 120 feet of wire fencing to enclose a rectangular garden. If the length of the garden was three times its width, find its dimensions.
 (a) $3w + 2w = 120$ (b) $6w + 2w = 120$ (c) $2w + 2w + 6 = 120$ [2, 1]
 (2) John earned $\frac{1}{3}$ as much money during the summer as did his brother Henry. If John earned \$36, how much did Henry earn?

(a) $3d = 36$ (b) $\frac{d}{3} = 36$ (c) $d + 36 = \frac{1}{3}$ [2, 1]

- b Find the value of A in the formula $A = b^2 - lw$ when $b = 6$, $l = 4$, and $w = 2$. [4]

34 The following diagram is the layout of a section of a park that is 50 feet long and 20 feet wide. In this section of park there are two circular flower gardens, each 7 feet in diameter, and another square flower garden that is 14 feet square. The remainder of the section is grass-covered.

- a How many square feet are there in each of the circular flower gardens? [2]
 b How many square feet are there in the square garden? [1]
 c How many square feet of grass are there? [4]
 d The area of the gardens is what per cent of the total area of the section? [3]



[4]

FOR TEACHERS ONLY

M

INSTRUCTIONS FOR RATING MATHEMATICS (Preliminary)

Wednesday, June 20, 1951 — 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) 65.69 | (14) \$4.50 |
| (2) $2\frac{3}{4}$ | (15) 5% |
| (3) 3100 | (16) 73 days <i>or</i> 73 [The method used in interest problems for figuring the number of days should not be credited in this problem.] |
| (4) 450 | (17) 2:1 <i>or</i> $\frac{2}{1}$ |
| (5) .02 | (18) 700 pupils <i>or</i> 700 |
| (6) 4,500.000 | (19) 12 ft. |
| (7) \$.50 <i>or</i> 50¢ | (20) 3 miles <i>or</i> 3 |
| (8) 72 | (21) 4 in. |
| (9) 6 ft. <i>or</i> 72 in. | (22) 36 mph |
| (10) .025 | (23) 160 bottles <i>or</i> 160 |
| (11) 225 miles <i>or</i> 225 | (24) 14 |
| (12) \$20.25 | (25) $l + 6$ |
| (13) 93% <i>or</i> 93 | |

Part II

Do not allow credit unless all necessary operations are given. Each answer must be reduced to its simplest form.

- | | |
|--|---|
| (26) Allow 10 credits as indicated: a 220,000 [2 credits] b 50,000 [3 credits] c 25% <i>or</i> 25 [3 credits] d 14 [2 credits] | (29) Allow 10 credits as indicated, to be scored on the basis of the teacher's judgment. [Note: a, c — 2 credits; b, d — 3 credits] |
| (27) Allow 10 credits as indicated: a 7 hours and 45 minutes [3 credits] b 56 mph <i>or</i> 56 [7 credits] | (30) Allow 10 credits as indicated: a \$5500 [2 credits] b $16\frac{2}{3}\%$ <i>or</i> $16\frac{2}{3}$ (<i>or</i> 17% <i>or</i> 17) [3 credits] c 5 [2 credits] d 9% <i>or</i> 9 [3 credits] |
| (28) Allow 10 credits as indicated: a \$21.00 [8 credits] b \$.70 <i>or</i> 70¢ [2 credits] | |

[OVER]

MATHEMATICS (PRELIMINARY)

(31) Allow 10 credits, 1 credit for each correct answer.

- a* receipt
- b* a ratio
- c* an angle of less than 90°
- d* bisection
- e* premium
- f* formula
- g* promissory note
- h* bank discount
- i* perpendicular lines
- j* perimeter

(32) Allow 10 credits as indicated:

- a* \$12,000 [3 credits]
- b* \$60 [7 credits]

(33) Allow 10 credits as indicated:

- a* (1) *b* [2 credits]
 w = width of the garden [1 credit]
- (2) *b* [2 credits]
 d = number of dollars Henry earned
 (or equivalent wording) [1 credit]

b 28 [4 credits]

(34) Allow 10 credits as indicated:

- a* $38\frac{1}{2}$ sq. ft. or $38\frac{1}{2}$ [2 credits]
- b* 196 sq. ft. or 196 [1 credit]
- c* 727 sq. ft. or 727 [4 credits]
- d* 27.3% or 27.3 [3 credits]