The University of the State of New York

318TH HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, June 17, 1953 — 9.15 a. m. to 12.15 p. m., only

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 on pages 4 and 5 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.

[1] [OVER]

MATHEMATICS (Preliminary)

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 class sold hot dogs at a football game. They purchased the following:

      100 pounds (8 to a pound) hot dogs at 54¢ a pound
      67   dozen rolls .... at 18¢ a dozen
      10 bottles mustard .... at 19¢ each
      16 bottles relish .... at 27¢ each
      10 packages of paper napkins..... at 14¢ a package
      4 bags of charcoal............. at 36¢ a bag

They sold 800 hot dogs at 20¢ each.

    a What was the total cost of the supplies?   [7]

    b How much profit did the class make on this sale?   [3]

27 In each of the following you will find a number that is *unnecessary* for the solution of the problem. In *each* case, write on your answer paper the *unnecessary number* and then *solve* the problem, using the remaining information.

    a A man gave a 5% mortgage for $6500 on a home which he purchased for $13,500. If each year he paid $650 on the principal in addition to the interest, what was the total amount of money he paid at the end of the first year?   [2, 3]

    b A man had a job with a florist. He was paid $50 a week and, if he made deliveries using his own car, he received an additional 8¢ for each mile traveled. One week he drove his own car 102 miles in making deliveries. How much did he receive for the use of his car that week?   [2, 3]

28 A salesman earns a salary of $200 a month plus a 5% commission on all sales above $8,000. One month his sales were $15,000. How much did he earn that month?   [10]

29 *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:

    (1) After spending 63¢ of his allowance (x), James had 87¢ left. How much was his allowance?

        (*a*) $x + 63 = 87$ (*b*) $x - 63 = 87$ (*c*) $63x = 87$ [2]

    (2) One package weighs twice as many pounds (w) as another package. If w represents the number of pounds in the smaller package and the combined weight of the packages is 15 pounds, how much does each package weigh?

        (*a*) $w + 2w = 15$ (*b*) $2w = 15$ (*c*) $2w - w = 15$ [2]

    b Solve *each* of the following equations for n and check your results:

    (1) $2n + 3 = 17$ [2, 1]

    (2) $\dfrac{n}{2} - 1 = 3$ [2, 1]

30 A dealer receives a bill of goods amounting to $290 subject to a regular 10% discount and a further 2% discount if he pays the bill within 10 days. If he decides to pay the bill within the 10 days, how much does he pay for the goods?   [10]

[2]

31 In each of the following parts (*a-j*) two different measurements are given. List the letters *a* through *j* on your paper. After *each* letter write the *larger* of the two measurements in that part. [10]

a ½ foot or 8 inches

b ¾ pound or 10 ounces

c ¾ hour or 40 minutes

d ½ year or 7 months

e 100 yards or 100 meters

f 3000 pounds or 2 tons

g 3 weeks or 22 days

h 2 days or 40 hours

i 7 quarts or 1 peck

j 6000 feet or 1 mile

32 *a* The four fundamental geometric constructions are:

(1) bisecting a straight line

(2) bisecting an angle

(3) dropping a perpendicular from a point to a line

(4) erecting a perpendicular to a line at a point in the line

On your answer paper list the numbers 1 through 4 and after *each* write the letter *A, B, C* or *D* to show which one of the following diagrams illustrates that construction.   [4]
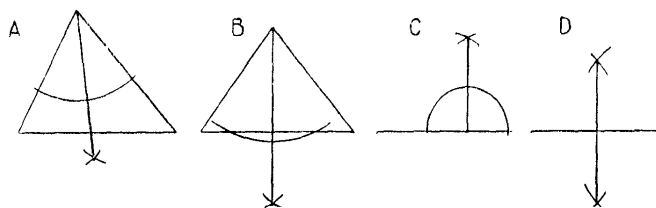

b In each of the following statements only one of the expressions within the parentheses makes the statement true. On your answer paper list the numbers 1 through 6 and after *each* number write the expression that makes the statement true.   [6]

(1) A semicircle is (twice, half, four times) as large as a circle.

(2) In 10 minutes the minute hand of a clock describes an angle of (10°, 60°, 30°).

(3) If two angles of a triangle are 50° and 50°, the triangle will have (two sides equal, three sides equal, no sides equal).

(4) The opposite sides of a rectangle are (parallel, perpendicular, unequal) to each other.

(5) The formula for finding the area of a triangle is ($A = \frac{1}{2}bh$, $A = bh$, $A = b^2$).

(6) A hexagon has (5, 6, 8) sides.

33 The graph below shows food expenditures in the United States for each of the years 1930 to 1950 inclusive.

a During what year were expenditures for food the lowest?   [2]

b During what year were expenditures for food the highest?   [2]

c Approximately how many billions of dollars were spent for food in 1950? [2]

d In what year did expenditures for food first reach 40 billion?   [2]

e During which one of these five-year periods (1930-35, 1935-40, 1940-45, 1945-50) did expenditures for food remain about the same?   [2]
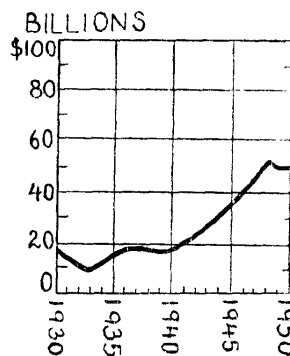
[3]

MATHEMATICS (Preliminary)

Wednesday, June 17, 1953

Fill in the following lines:

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

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 $5.95, $.18, $198, $12.43, $6.65

1........ . ...

2 Subtract 731,969 from 940,614

2................

3 Divide 9.744 by 2.4

3................

4 Multiply $1\frac{1}{2}$ by $1\frac{1}{4}$ by $\frac{2}{3}$

4................

5 Perform the indicated operation:
$$6\frac{1}{2} + 4\frac{7}{12}$$

5... ....

6 What is the shortest board a man must buy in order to cut three sections from it each 4 feet, 8 inches long?

6.. ... ...

7 The circle at the right represents a family's total income. The shaded section shows the part of their income allowed for rent. What per cent of their income is allowed for rent?

RENT
90°
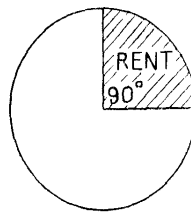
7......... .. .

8 A boy sold $88.50 worth of stationery. If he received $33\frac{1}{3}\%$ commission, what was the amount of his commission?

8................

9 A man takes out a $5000 life insurance policy at a yearly rate of $29.62 per $1000. What is the yearly premium?

9................

10 On her maiden voyage the SS *United States* made the trip from New York to England in 3 days, 10 hours and 40 minutes, beating the record set by the SS *Queen Mary* in 1938 by 10 hours and 2 minutes. How long did it take the *Queen Mary* to make the trip?

10................

11 In four successive weeks a boy spent 78¢, $2.04, $1.53 and 29¢ in buying old stamps for his collection. What was the average cost per week for his hobby?

11................

12 There are 60 pupils in a school who participate in a certain activity. If this is 12% of the student body, how many pupils are there in the school?

12................

[OVER]

13 Two angles of a triangle measure 70° and 40°. How many degrees are there in the third angle?

13................

14 What is the simple interest on $600 at 4% for 2 years?

14................

15 If three times a certain number increased by 4 is equal to 19, what is the number?

15................

16 The area of a square flower bed is 81 square feet. What is the length of one side of the flower bed?

16................

17 A boy worked on Saturday from 7:30 a. m. until 11:00 a. m. at the rate of 80¢ per hour. How much should he have received for his work?

17................

18 Express algebraically the perimeter of the figure at the right.
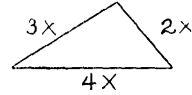
18................

19 What is the value of $6s^2$ when $s = 3$?

19................

20 How many quart bottles can be filled from four 10-gallon cans of milk?

20................

21 The diameter of a bicycle wheel is 28 inches. Express in inches the circumference of the wheel. [Use $\pi = 3\frac{1}{7}$]

21................

22 Find the height of a flagpole which casts a shadow 40 feet long at the same time that a 6-foot pole casts a shadow 10 feet long.
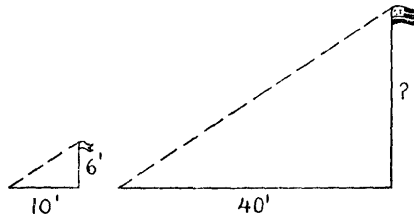
22................

23 A certain brand of vegetables may be purchased in two sizes, A or B. For size A the price is 24¢ for 12 oz. and for size B the price is 35¢ for 20 oz. Which is cheaper in cost per oz. for the customer to buy?

23................

24 Which one of the following is the largest real estate rate?
    (*a*) $31.10 per $1000   (*b*) $4.23 per $100   (*c*) 32 mills per $1

24................

25 Which one of the following has the smallest value?
    (*a*) $\frac{5}{8}$ (*b*) .82   (*c*) 75%

25................

FOR TEACHERS ONLY

M

INSTRUCTIONS FOR RATING

MATHEMATICS (Preliminary)

Wednesday, June 17, 1953 — 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) $223.21
(2) 208,645
(3) 4.06
(4) $\frac{5}{4}$
(5) $11\frac{1}{12}$
(6) 14 feet *or* 168 inches
(7) 25% *or* 25
(8) $29.50
(9) $148.10
(10) 3 days, 20 hours, 42 minutes
(11) $1.16
(12) 500
(13) 70° *or* 70

(14) $48
(15) 5
(16) 9 feet
(17) $2.80
(18) $9x$
(19) 54
(20) 160
(21) 88 inches *or* 88
(22) 24 feet
(23) B
(24) b *or* $4.23 per $100
(25) a *or* $\frac{5}{8}$

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 a total of 10 credits as indicated:
a $75.12   [7]
b $84.88   [3]

27 Allow a total of 10 credits, 2 credits for each unnecessary number given and 3 credits for each correct solution.
  a unnecessary number — $13,500
    solution — $975
  b unnecessary number — $50
    solution — $8.16

28 Allow 10 credits for the following answer:
$550.

29 Allow a total of 10 credits as indicated:

a (1) $x - 63 = 87$ *or b*   [2]
    (2) $w + 2w = 15$ *or a*   [2]

b (1) solution: $n = 7$ [2]
    check:
      $2 \times 7 + 3 = 17, 14 + 3 = 17,$
      $17 = 17$ [1]

    (2) solution: $n = 8$ [2]
    check:
      $\frac{8}{2} - 1 = 3, 4 - 1 = 3, 3 = 3$ [1]

[OVER]

30 Allow 10 credits for the following answer: $255.78.

31 Allow a total of 10 credits, 1 credit for each of the following:

a 8 inches

b $\frac{3}{4}$ pound

c $\frac{3}{4}$ hour

d 7 months

e 100 meters

f 2 tons

g 22 days

h 2 days

i 1 peck

j 6000 feet

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

a (1) D

(2) A

(3) B

(4) C

b (1) half

(2) 60°

(3) two sides equal

(4) parallel

(5) $A = \frac{1}{2}bh$

(6) 6

33 Allow a total of 10 credits, 2 credits for each of the following:

a 1933

b 1948

c 50 or 50 billions or $50,000,000,000

d 1946

e 1935-40