The University of the State of New York

MATHEMATICS (Preliminary)

Wednesday, January 21, 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.

[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 On June 1, Mr. Smith's bank balance in his checking account was $216.65. The deposits made and the checks written during June were as follows:

Date	Deposits	Checks
June 2	. . . . . .	$ 30.25
June 4	$175.50	. . . . . .
June 6	. . . . . .	140.60
June 10	. . . . . .	18.75
June 18	125.00	85.46
June 20	. . . . . .	216.80
June 25	92.40	. . . . . .
June 28	. . . . . .	52.20

If the bank deducts from the account a charge of 5 cents for each deposit and 5 cents for each check drawn, what was Mr. Smith's bank balance on July 1? [10]

27 The money raised by a student association was apportioned as follows: $\frac{1}{3}$ for school publications, $\frac{2}{9}$ for athletics, $\frac{1}{18}$ for school parties, $\frac{1}{6}$ for music organizations and $\frac{1}{9}$ for special assembly programs, with the remainder to be divided equally among the service organizations in the school.

a What fractional part of the total sum was allotted to the service organizations? [4]

b If $2700 was the amount raised, how much was allotted for each purpose? [6]

28 The Smiths purchased a home for which the yearly expenses were: interest, 4% on a $12,000 mortgage; insurance, $50; taxes, $250; repairs, $200; fuel, $150; maintenance of grounds, $58.

a What were the Smiths' total yearly expenses for their home? [6]

b What was the average monthly expense of owning the house? [4]

29 In each of the following problems, one item of information necessary for the solving of the problem has been omitted. For *each* supply the necessary item.

a If you buy 10 yards of cloth, how much change should you receive from a $5 bill? [2]

b What is the interest on $200 for 6 months? [2]

c A baseball team won 20 games. What per cent of the games played did the team win? [2]

d How many square feet are there in a rectangular lot that is 50 feet wide? [2]

e Mr. Smith, living in a certain community, has property assessed for $8,000. What amount does Mr. Smith pay in taxes? [2]

30 List the letters *a* through *e* on your answer paper. Then read carefully each of the following. If the statement is true, write the word *true* opposite the proper letter. If the statement is false, write the word *false.*

a A per cent of a number is always less than the number. [2]

b A cancelled check, if saved, serves as a receipt. [2]

c The amount of money paid to an insurance company to insure you against loss is called the " face " of an insurance policy. [2]

d On a floor plan where $\frac{1}{4}$ inch represents one foot, any distance measured on that plan represents an actual distance 48 times as great. [2]

e When you add the same number to both the numerator and the denominator of a fraction, you always increase the value of the fraction. [2]

[2]

31 Each problem below is followed by three equations. In each case the letter represents what is called for in the problem. For *each* problem select the equation that represents correctly the conditions of the problem and write the equation on your answer paper. [Do *not* solve the equations.]

a After a piece 16 inches long had been cut from a board, the remaining piece was 46 inches long. What was the original length of the board? [3]

(1) $x + 16 = 60$ (2) $x - 16 = 46$ (3) $46 - x = 16$

b A rectangle has an area of 60 square feet. If it is 15 feet long, how wide is it? [3]

(1) $30 + 2w = 60$ (2) $w + 15 = 60$ (3) $15w = 60$

c A man made a business trip of 390 miles in two days. If he traveled 30 miles farther the second day than he did the first day, how far did he travel the first day? [4]

(1) $d + d + 30 = 390$ (2) $d + 30 = 390$ (3) $390 - d = 30$

32 *a* Solve *each* of the following equations and check your answers:

(1) $2n + 7 = 21$ [2, 1]

(2) $\frac{3}{8}a = 27$ [2, 1]

b If *c* represents the price of a car in dollars, express algebraically

(1) the price of a car costing $450 more [1]

(2) the price of a car costing $1\frac{1}{2}$ times as much [1]

(3) the price of a car costing $50 less than twice as much [2]

33 *a* On your answer paper list the numbers 1 through 5. Then select from column *B* the correct definition for *each* term in column *A* and write its letter opposite the proper number on your answer paper. [5]

Column A	*Column B*
(1) volume	(*a*) the distance around a figure
(2) radius	(*b*) a line drawn from the center of a circle to any point on the circle
(3) perimeter	(*c*) a line joining two points on a circle and passing through the center
(4) area	(*d*) the number of cubic units contained in a solid
	(*e*) the side opposite the right angle of a right triangle
(5) hypotenuse	(*f*) the number of square units contained in a surface

b On your answer paper list the numbers 1 through 5. Then select from column *B* the correct definition for *each* term in column *A* and write its *letter* opposite the proper number on your answer paper. [5]

Column A	*Column B*
(1) obtuse angles	(*a*) a triangle with three equal sides
(2) equilateral triangle	(*b*) angles formed by two intersecting straight lines
(3) acute angles	(*c*) angles less than 90°
(4) isosceles triangle	(*d*) angles less than 180° and more than 90°
(5) scalene triangle	(*e*) a triangle with three unequal sides
	(*f*) a triangle with only two equal sides

MATHEMATICS (Preliminary)

Wednesday, January 21, 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.

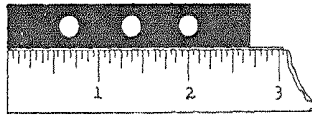1 Find the value of $6\frac{1}{2} - 2\frac{1}{3} + 4\frac{1}{12}$ 1................

2 Subtract $4.98 from $10   2................

3 Multiply 224 by $13\frac{3}{4}$ 3................

4 Divide 5.672 by .08   4................

5 On a certain day the sun rises at 7:30 a. m. and sets at 5:15 p. m. How many hours and minutes is it from sunrise to sunset?   5................

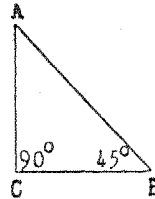6 A ruler is placed against a metal plate as shown in the diagram. What is the length of the plate?

6................

7 According to the census, a certain city had a population of 680,695. Write this number to the *nearest thousand*.   7................

8 How many degrees are there in angle A of triangle ABC shown at the right?

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

9 If a section 2 feet, 8 inches long is cut from a piece of lumber 10 feet long, what is the length of the part that remains?   9................

10 The total cost of all food supplies needed for a camping trip for a group of Boy Scouts was $186. What was the cost of food for each one of the 20 Scouts who went on the trip?   10................

11 If n represents a certain number, express in terms of n a number that is 3 less than 6 times n.   11................

12 What per cent of the figure at the right is shaded?

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

13 A class earned $60 commission from the sale of magazine subscriptions. This amount was equal to 25% commission on all sales. How many dollars worth of magazine subscriptions did they sell?   13................
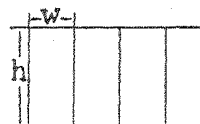
14 How many miles are represented by $2\frac{1}{4}$ inches on a map drawn to the scale 1 in. = 100 mi.?   14................

[4]   [OVER]

15 The diameter of a circle is 28 inches. What is the circumference of the circle? [Use $\pi = 3\frac{1}{7}$.]

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

16 The large rectangle at the right is made up of equal rectangles with dimensions as indicated. Express algebraically in terms of h and w the perimeter of the large rectangle.

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

17 A boy is given a $100 bond that pays $2\frac{3}{4}\%$ interest annually. How much interest does he receive at the end of the first year?

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

18 A woman bought 12 yards of linen toweling. How many towels, each 27 inches long, can be cut from this length of material?

18................

19 If $\dfrac{n}{3} = 4$, what is the value of n?

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

20 The hypotenuse of a right triangle is 5 feet in length. One of the other sides of the triangle is 4 feet in length. What is the length of the third side?
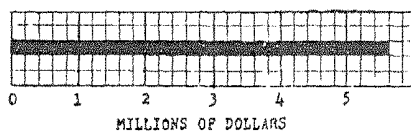
20................

21 The formula for finding the surface of a cube is $S = 6e^2$. Find S if e is 3 inches.

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

22 What amount of money is represented by the bar in the diagram below?

22................

MILLIONS OF DOLLARS

Follow these directions in answering questions 23, 24 *and* 25: Write on the line at the right of each statement or question the letter $(a, b, c$ or $d)$ representing the correct answer.

23 The fraction $\frac{2}{3}$ has the same meaning as (a) 40% (b) 50% (c) $66\frac{2}{3}\%$ (d) 150%
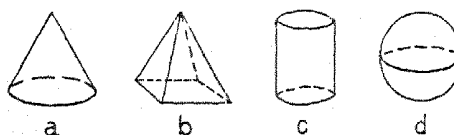
23................

24 Lines AD and AB of the rectangle pictured at the right are (a) equal (b) horizontal (c) parallel (d) perpendicular
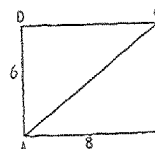
24................

25 For which one of the following geometric solids is it possible to find the volume merely by multiplying its base by its height?

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

a   b   c   d

[5]

FOR TEACHERS ONLY

M

INSTRUCTIONS FOR RATING
MATHEMATICS (Preliminary)
Wednesday, January 21, 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) $8\frac{1}{4}$

(2) $5.02

(3) 3,080

(4) 70.9

(5) 9 hours and 45 minutes

(6) $2\frac{11}{16}$ inches

(7) 681,000

(8) 45° *or* 45

(9) 7 feet, 4 inches *or* $7\frac{1}{3}$ feet

(10) $9.30

(11) $6n - 3$

(12) 50% *or* 50

(13) $240 *or* 240

(14) 225 miles *or* 225

(15) 88 inches

(16) $8w + 2h$ *or* $2(4w + h)$

(17) $2.75

(18) 16

(19) 12

(20) 3 feet

(21) 54 square inches

(22) $5,600,000 *or* 5.6 million dollars

(23) c

(24) d

(25) c

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 for the following answer:
$65.04

27 Allow a total of 10 credits as indicated:

a $\frac{1}{9}$ [4]

b school publications .....$900 [1]

  athletics .... 600 [1]

  school parties .... 150 [1]

  music organizations .... 450 [1]

  assembly programs ..... 300 [1]

  service organizations ... 300 [1]

28 Allow a total of 10 credits as indicated:

a $1188 [6]

b $99 [4]

29 Allow a total of 10 credits, 2 credits for supplying each of the missing items of information:

a cost per yard

b rate of interest

c number of games played

d length of rectangle

e tax rate

[OVER]

30 Allow a total of 10 credits, 2 credits for each correct answer:

    a false

    b true

    c false

    d true

    e false

31 Allow a total of 10 credits as indicated:

    (*a*) $x - 16 = 46$ [3]

    (*b*) $15w = 60$ [3]

    (*c*) $d + d + 30 = 390$ [4]

32 Allow a total of 10 credits as indicated:

    a (1) solution: $n = 7$ [2]

           check:

              $2 \times 7 + 7 = 21, 21 = 21$ [1]

      (2) solution: $a = 45$ [2]

          check: $\frac{3}{5} \times 45 = 27, 27 = 27$ [1]

b (1) $c + \$450$ [1]

   (2) $1\frac{1}{2}c$ *or* $\frac{3}{2}c$ *or* $1.5c$ [1]

   (3) $2c - \$50$ [2]

33 Allow a total of 10 credits, 1 credit for each correct answer:

  a (1) *d*

    (2) *b*

    (3) *a*

    (4) *f*

    (5) *e*

  b (1) *d*

    (2) *a*

    (3) *c*

    (4) *f*

    (5) *e*