

The University of the State of New York

303D HIGH SCHOOL EXAMINATION

MATHEMATICS (Preliminary)

Wednesday, June 23, 1948 — 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.

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 8.679; 9.2; .403; .8; 62.31 1.
- 2 In a certain community, during one year, the highest temperature recorded was 88 degrees above zero and the lowest temperature recorded was 5 degrees below zero. What was the difference in degrees between the highest and lowest recording? 2.
- 3 In order to deliver 21,500 pounds of coal, a truck carrying the same amount each trip had to make 5 trips. How many pounds were carried on each trip? 3.
- 4 Divide 9.18 by 2.7 4.
- 5 How much does $4\frac{3}{4} + 1\frac{1}{2} - 3\frac{1}{4}$ equal? 5.
- 6 How much profit does a grocer make if he buys a case of soup containing 24 cans for \$2.50 and sells it for \$.14 per can? 6.
- 7 What fractional part of 120 is 45? 7.
- 8 A farmer placed 192 eggs in an incubator. If 75% of these eggs hatched, how many eggs hatched? 8.
- 9 For a sale, the price of a shirt was dropped from \$4 to \$3.50. What was the per cent of decrease in the price? 9.
- 10 If \$40 is 10% of a certain amount, what is the amount? 10.
- 11 Multiply $8\frac{2}{3}$ by $6\frac{3}{4}$ 11.
- 12 Write in figures: four thousandths 12.
- 13 A room in a new school is to have a floor area of 770 square feet. If its length is to be 35 feet, what must be its width? 13.
- 14 Find the area of a circle having a diameter of 14 inches. [$\pi = \frac{22}{7}$] 14.
- 15 Jerry's class purchased 10 boxes of candy for \$9.60. If each box contained 24 candy bars, what was the cost of each bar? 15.
- 16 If $x = 4$ and $y = 3$, what is the value of $2x - y$? 16.
- 17 Write a true proportion, using the following figures: 5, 4, 8, 10 17.
- 18 At the rate of 26 cents per \$100, how much does it cost to insure a building for \$5000 against fire? 18.
- 19 Multiply 720 by $87\frac{1}{2}$ 19.
- 20 Is a bushel 2, 4, 6 or 8 pecks? 20.
- 21 Mr Thomas borrowed \$1200 from a bank for 90 days at 4% interest. How much interest did he pay? 21.
- 22 Paul has x marbles, which is twice as many as Henry has. Express algebraically the number of marbles Henry has. 22.
- 23 What will be the cost of 36 pencils at the rate of 2 pencils for 5 cents? 23.
- 24 Find the difference in height between Jane, who is 5 feet 2 inches tall, and Mary, who is 4 feet 11 inches tall. 24.
- 25 If a confectioner sold 13 quart containers and 11 pint containers of ice cream in one day, how many gallons of ice cream did he sell? 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.*

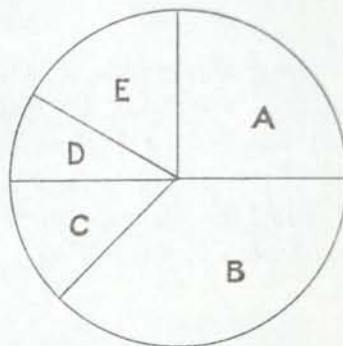
26 In a school cafeteria, hamburgers were sold at 10 cents each. During one week, 60 pounds of meat were sold that averaged 12 hamburgers to the pound and cost 65 cents a pound at the market. The hamburgers were sold on rolls that cost 30 cents a dozen.

- a What was the total income for the week from the sale of hamburgers? [4]
- b What was the total cost of the meat and rolls? [4]
- c How much profit was made on the sale of the hamburgers? [2]

27 Last winter in a certain school, grades 2, 3, 4, 5 and 6 decided to get together supplies to send to needy children in other parts of the world. The total amount collected was 720 pounds.

- a Copy on your answer paper the table below, which shows the number of pounds collected by each grade. Then complete the table by writing for each grade the letter that indicates on the graph the fractional part of the total that was collected by that grade. [5]

Grade 2: 180 pounds =
Grade 3: 90 pounds =
Grade 4: 120 pounds =
Grade 5: 60 pounds =
Grade 6: 270 pounds =



- b How many degrees are there in each section of the circle, A, B, C, D and E? [5]

28 An airplane left a New York City airport at 12:30 p. m. and flew to an airport near Boston, Massachusetts, 240 miles away. The plane was supposed to reach the Boston airport at 1:35 p. m. of the same day. Because of bad weather, however, the plane arrived 25 minutes late.

- a At what time did the plane arrive at the Boston airport? [2]
- b How long did the trip take? [3]
- c What was the average speed per hour of the plane on this trip? [5]

29 A man worked as follows during a week: Monday, 8 hr 45 min.; Tuesday, 9 hr; Wednesday, 8 hr 50 min.; Thursday, 9 hr 35 min.; Friday, 9 hr 40 min.; Saturday, 5 hr 40 min. He earned \$1.60 an hour for each of the first 40 hours and \$2.40 an hour for each additional hour over 40 hours that he worked.

- a How many hours did he work during the week? [4]
- b What were his total earnings for the week? [6]

30 On a certain map two cities are located as follows: [Scale of miles: 1 inch = 100 miles]

City A

City B

- a What is the straight-line distance between the two cities? [4]
 b At the average rate of 125 miles per hour, how long will it take an airplane to fly from city A to city B? [6]

31 a A boy earned 10 dollars more than twice as much as his sister. Together they earned 40 dollars. Letting x equal the amount the sister earned, write an equation and solve it to find the amount *each* earned. [3]

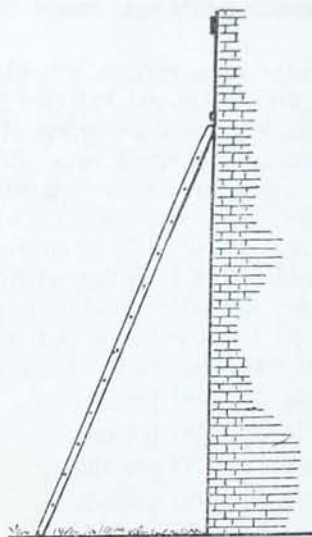
b Solve *each* of the following for x :

(1) $3x - 2 = 10$ [2]

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

(3) Solve for V in the formula $V = twh$ when $t = 4$, $w = 3$ and $h = 2$ [3]

32 The drawing represents a ladder 13 feet long placed against a building so that the top of the ladder just reaches the bottom of a window sill. The base of the ladder is placed 5 feet from the building. Find the distance from the ground to the bottom of the window. [10]



33 In each of the following problems you will find one more fact than is necessary for solution. In *each* case, write on your answer paper the *unnecessary fact* [3] and then solve the problem [2].

- a A boy receives a regular salary of \$2 per week for delivering packages. In addition he receives 5 cents per mile traveled in making the deliveries. How much will he receive this week for miles traveled, if he travels 32 miles? [5]
 b At 2 cents per square foot, how much will it cost to paint the surface of a concrete floor 40 feet long, 30 feet wide and 8 inches thick? [5]