

The University of the State of New York
281ST HIGH SCHOOL EXAMINATION
ARITHMETIC
Wednesday, June 18, 1941 — 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.

ARITHMETIC

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 How much money will each of 68 stockholders receive if \$31,314 is divided equally among them? 1.....
- 2 A man erected $\frac{1}{4}$ mile of fence the first day, $\frac{1}{3}$ mile the second day and $\frac{1}{2}$ mile the third day. How much did he erect in the three days? 2.....
- 3 How much change will I get from a five-dollar bill if I buy 15 gallons of gasoline at 18 cents a gallon? 3.....
- 4 Helen is making $\frac{2}{3}$ of her recipe for fudge. How much sugar must she use if the recipe calls for $2\frac{1}{2}$ cups of sugar? 4.....
- 5 If a boy earns \$2.40 a week, how much will he earn in a year? 5.....
- 6 When written as a Roman numeral, 1941 is one of the following: MDCCCXLI, MCMXLI, MCMCCCI. Which is correct? 6.....
- 7 Express in miles the altitude of an airplane flying at 21,120 feet. 7.....
- 8 If you answer correctly 88 per cent of the questions on part I of this examination, how many questions will you answer correctly? 8.....
- 9 On level ground, do trees normally grow parallel or perpendicular to the ground? 9.....
- 10 How many degrees are there in the sum of the two acute angles of a right triangle? 10.....
- 11 If there are 7 frankfurters in 1 pound, how many pounds would you buy for a picnic to supply 21 pupils with 2 frankfurters each? 11.....
- 12 How many 9-inch wings for model airplanes can be cut from a piece of wood 12 feet long? 12.....
- 13 If the area of a square is 36 square inches, how long is one side? 13.....
- 14 At the rate of 40 cents for the first three minutes and 20 cents for each additional minute, what is the cost of a five-minute telephone call? 14.....
- 15 Find the freight charges on a shipment weighing 360 pounds, when the freight rate is 15¢ per 100 lb or fractional part of 100 lb. 15.....
- 16 The population of a village has increased from 1500 to 1800 since the last census. What is the per cent of increase in population? 16.....
- 17 In drawing a plan of a garden 20 feet by 15 feet, at a scale of $\frac{1}{8}$ inch equals 1 foot, how long a line represents the length of the garden? 17.....
- 18 Jack walked x miles and then rode 4 more miles than he had walked. Express the total distance that he traveled. 18.....
- 19 If you subtract 6 from one side of an equation, what must you do to the other side of the equation? 19.....
- 20 When $4x$ equals 24, what does $5x$ equal? 20.....
- 21 How long is a school day that starts at 8:45 a. m. and closes at 3:30 p. m., including the time spent at lunch? 21.....
- 22 A rectangle is 6 inches by 8 inches. How long is its diagonal? 22.....
- 23 How many inches does Joan's bicycle go in one turn of the wheels, if their diameter is 28 inches? 23.....
- 24 If 5 oranges make 3 glasses of orange juice, how many oranges must be used to make 9 glasses of juice? 24.....
- 25 Which is longer, a meter stick or a yardstick? 25.....

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Wednesday, June 18, 1941

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 arithmetic.

The minimum requirement is the completion of the work of the eighth grade in arithmetic.

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 commission merchant received 40 cases of eggs, each case containing 30 dozen eggs. He sold the eggs at 27¢ a dozen and charged 4% commission.

a What was the merchant's commission? [5]

b After paying \$15 for express charges, how much did the farmer get for his eggs? [5]

27 An army is organized as follows:

- 250 soldiers in a company
- 4 companies in a battalion
- 3 battalions in a regiment
- 3 regiments in a brigade
- 3 brigades in a division

How many soldiers are there in a division? [10]

28 Answer both a and b:

a Suppose one of the boys in your class earns \$1 a day during the coming vacation. How many days will he have to work to earn enough to pay for the following clothes to wear to high school next fall: 1 pair of trousers at \$3; 2 shirts at \$1.25 each; 1 pair of \$4 shoes; a \$3.50 sweater; socks and underwear \$3; 2 neckties at 50¢ each? [5]

b Assume that the above is purchased on August 29, 1941, from the Main Street Clothing Company, Hunter, N. Y. Make out the bill to some boy you know. [5]

29 The list price of a radio is \$90, with a discount of 10% for cash. The same radio can also be purchased on the instalment plan for a down payment of \$10 and payments of \$7.50 a month for one year. How much more does the radio cost when purchased on the instalment plan than when cash is paid? [10]

30 A gas-station operator's gasoline sales for one week were as follows: Monday, 255 gallons; Tuesday, 280 gallons; Wednesday, 235 gallons; Thursday, 375 gallons; Friday, 370 gallons; Saturday, 465 gallons; Sunday, 690 gallons. He paid \$14 per 100 gallons for the gasoline and sold it at 6 gallons for \$1.

a What were his total sales for the week? [3]

b How much did he pay for the gasoline he sold that week? [3]

c How much did he receive for the total sales? [3]

d What was his profit for the week? [1]

31 Mr Day purchases a \$1000, 20-year endowment policy at an annual premium of \$52.41 per \$1000.

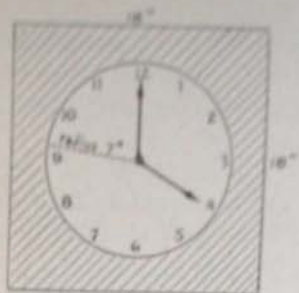
a How much will he pay in premiums during the 20-year period? [2]

b If at the end of 20 years he receives \$1441, how much more money will he receive than he has paid in premiums? [3]

c If Mr Day dies after making five payments, how much more will the beneficiary receive from the company than Mr Day paid in premiums? [5]

32 The accompanying drawing represents the front of a square clock, with the hands pointing to four o'clock.

- How many degrees are there between the hands? [2]
- What is the area of the dial? [3]
- What is the area of the shaded surface outside the dial? [3]
- How many degrees are there in the sum of the four angles formed by the four sides? [2]



33 a Choose the equation that would be used to solve *each* of the following problems:

- The perimeter of a square is 36 feet. Find the length of one side.
 $4 + s = 36$; $4s = 36$; $s - 4 = 36$ [2]
- The East Junior High School basketball team won 5 more games than it lost. If it played 15 games, how many games did it lose?
 $2x + 5 = 15$; $5x = 15$; $x + 5 = 15$ [2]

b Solve the following equations:

- $x + 3x + 5x = 36$ [2]
- $3x - 4 = x - 6$ [2]

c If x equals 2, check the equation $3x + 4 = 10$ [2]

34 The accompanying picture graph shows the number of graduates of New York State high schools in certain years. Each symbol represents 10 thousand graduates.

- Approximately how many pupils were graduated from high school each year represented by the graph? [5]
- How many times as many pupils were graduated in 1930 as were graduated in 1910? [2]
- Approximately what is the per cent of increase in the number of graduates in 1940 over the number of graduates in 1930? [3]

