BUSINESS ARITHMETIC
Friday, January 20, 1939

NAME OF SCHOOL

NAME OF CANDIDATE

Fill above blanks before signal to begin work is given by examiner.

Do not open this paper until the signal is given.

Examiner will place this paper closed on desk of each candidate. Candidate will open the paper and begin work at signal from examiner. All parts of the rapid calculation test are to be worked mentally and the results placed on the sheet. At the end of 15 minutes, work must stop and the sheet used for this part of the examination must then be detached from the rest of the question paper and immediately handed to the examiner.

All work must be done with pen and ink.

BUSINESS ARITHMETIC RAPID CALCULATION TEST

1–2 *a* Make the extensions: [5]

    80 bu. @ $1.75 =

    12 yd @ $3\frac{1}{3}$¢ =

    90 lb @ $66\frac{2}{3}$¢ =

    64 yd @ $87\frac{1}{2}$¢ =

    360 lb @ $16\frac{2}{3}$¢ =

b Compute the interest on *each* of the following: [5]

    $840 for 40 days at 6 % =

    $900 for 22 days at 6 % =

    $150 for 36 days at 3 % =

    $200 for 120 days at $4\frac{1}{2}$% =

    $36 for 60 days at 5 % =

c Complete *each* of the following: [6]

A tax rate of $18\frac{1}{2}$ mills on $1 is equivalent to $........ per $1000.

$\frac{3}{4}$% expressed as a decimal is ....

The number that will give 24 when increased by $\frac{1}{3}$ of itself is ....

80 is 25% of ....

A table that was listed at $50 was sold for $40; the rate of discount was ....%.

2 yd 1 ft 6 in. is equal to .... inches.

d Complete the following record of insurance policies written: [4]

	Albany Branch	Buffalo Branch	Total
January	81	102	
February	108	99	
March	95	85	
April	67	76	
May	122	116	
June	73	93	
Total			

The University of the State of New York

274TH HIGH SCHOOL EXAMINATION

BUSINESS ARITHMETIC

Friday, January 20, 1939 — 9.15 a. m. to 12.15 p. m., only

Write at top of first page of answer paper (*a*) name of school where you have studied, (*b*) number of weeks and recitations a week in business arithmetic.

The minimum time requirement is five recitations a week for a school year.

Answer questions 1–2 and eight of the others. Unless otherwise stated all operations except mental ones are to be shown. Practical business methods must be used in solutions.

1–2 Rapid calculation test on attached sheet. [20]

3 Answer all parts of this question. [10] [Deduct 2 credits for each incorrect answer. Answers only are required in this question.]

a A garage is 20' × 18'. Give the dimensions of a diagram of the garage if a scale of ¼ inch to a foot is used.

b Pigskin gloves selling at $2.50 a pair advanced in price to $3 a pair. What is the per cent of increase?

c G. E. Getman gave an agency an account amounting to $500 to collect. The agency collected 75% of the account and charged 5% for collecting. How much did Getman receive?

d When potatoes sell for $.90 a bushel, which is better for the agent, a commission of 3% or a commission of 3¢ a bushel?

e A desk that cost $35 has been selling for $45.50. The same type of desk costs $37.50 today. At what price should it be sold to make the same rate of profit on the cost?

4 A commission merchant purchased for Walker & Son a carload of potatoes, containing 40,200 pounds, at 75¢ a bag. The net weight of each bag was 100 pounds. The commission merchant's expenses and charges were $65.57 for freight, $14.75 for sacks, $18.50 for labor and 5% commission.

a How much did the potatoes cost Walker & Son? [8]

b What price per bushel (60 pounds) did Walker & Son pay? [2]

5 A dealer estimates that his selling and overhead expenses amount to 20% of his total sales. If he buys a radio for $64, less 25% and 10%, at what price must he sell it in order to gain $12\frac{1}{2}$% on the selling price? [10]

6 On December 5, Lenz & Company had a checkbook balance of $462.38. They wished to pay Maxson & Son for goods purchased on November 25 for $1375, less 20% and 10%, terms $^2/_{10}$ $^n/_{30}$. To raise additional funds for the bank account, they discounted Hale & Company's three-months interest-bearing note for $750, dated October 14. They then mailed their check to Maxson & Son.

a For how much did Lenz & Company write their check in payment of the bill on December 5? [2]

b What were the proceeds of the note that was discounted at the bank? [6]

c What was the balance in the checkbook after the check was issued? [2]

7 You wish to borrow $300 on a note and pay it back in instalments of $75 each month on the principal. The total interest and other charges made by a bank for this loan will be $5.75. A loan company will charge 3% a month on that part of the loan which does not exceed $150 and $2\frac{1}{2}$% a month on that part of the loan which exceeds $150.

a Find the total interest cost that would be charged by the loan company. [In your solution show the interest to be paid each month.] [8]

b From which concern would it be better to borrow? How much better? [2]

8 A merchant bought 6 dozen blankets at $6 a blanket and marked them up 50% for regular sale. At the close of the season 18 blankets remained unsold. If the merchant wished to realize a profit of 40% on the cost of the 6 dozen, at what special price must he mark each of the remaining blankets? [10]

9 The semiannual rates for water in a certain city are as follows: 25¢ per 100 cubic feet for the first 5000 cubic feet or less; 20¢ per 100 cubic feet for the next 5000 cubic feet or less; 15¢ per 100 cubic feet for the next 5000 cubic feet or less. Find the amount of Mr Anderson's water tax for six months if his meter showed 12,200 cubic feet used and if he took advantage of the 20% discount allowed for payment within 30 days. [10]

10 Williams was considering the purchase of real estate priced at $10,000 and subject to a mortgage of $5000. It was assessed at $7500 and insured for $6000. The interest rate on the mortgage was 5%, the tax rate $23.75 per thousand and the insurance rate 80¢ per $100 for three years. The annual expense for repairs was estimated to be 2% of the purchase price.

    a What was the amount of the annual interest charge? [2]

    b What were the annual taxes? [2]

    c What was the annual cost of insurance? [2]

    d What minimum monthly rental will Williams have to receive for the property in order to cover expenses? [4]

11 Answer both *a* and *b*:

    a The four departments of a glove factory occupy floor space as follows: cutting department 2000 square feet, making department 3800 square feet, examining department 1500 square feet and shipping department 2200 square feet. The yearly heating cost for the entire factory is $2185. If this expense is divided among the several departments according to floor space, find the amount that should be charged to each department. [5]

    b In addition to the heating cost, the expenses in operating this factory for the year were: rent $2760, insurance $424.50, miscellaneous expenses $3794.50. The goods manufactured during the year amounted to $192,000. What per cent of this output were the total factory expenses? [Express your answer to the *nearest tenth* per cent.] [5]

12 On December 15, 1937, a trucking company equipped each of two trucks of the same make and size with four new tires. On September 10, 1938, the tires had to be replaced. The speedometer readings and the costs were as follows:

Truck	Speedometer Reading		Tire Cost
	Dec. 15	Sept. 10	
A	96,482	146,482	$90 each (Grade 1)
B	36,785	76,785	$82 each (Grade 2)

    a What was the cost per mile for each tire on truck A? [3]

    b What was the cost per mile for each tire on truck B? [3]

    c Supplying *two* reasons for your answer, state which was the more economical tire to buy. [4]