

MATHEMATICS (8TH GRADE)—JANUARY 1959 (1)

Part I

Answer all questions in this part. Write the answer to each question on the line at the right. Questions 1-20 count 2 credits each; no partial credit is allowed. Questions 21-30 count 1 credit each. Reduce each answer to its simplest form.

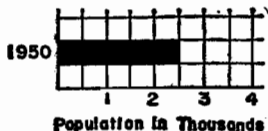
1. Subtract \$941.20 from \$1,000
2. Add $8\frac{9}{10}$, $4\frac{1}{2}$, $6\frac{1}{4}$
3. Find the value of $1\frac{1}{2} \times 1\frac{3}{4} \times \frac{2}{3}$
4. Change $\frac{3}{8}$ to a decimal correct to the nearest hundredth
5. Multiply \$.86 by $5\frac{1}{2}$
6. Divide 20.25 by .045
7. Which of the following numbers when multiplied by 100 results in 10: .01, .1, 10?
8. On a mathematics test $12\frac{1}{2}\%$ of a class received a mark of D, $37\frac{1}{2}\%$ a mark of C, 25% a mark of B, and the remainder a mark of A. What percent of the class received a mark of A?
9. On a road map it was explained that 1 inch represented 12 miles. How many miles would a length of $2\frac{1}{4}$ inches represent?
10. A housewife bought a lamp for \$6.75. She returned the lamp the next day and chose a better lamp for \$8.95. She gave the clerk a five-dollar bill to pay for the difference in price. How much change should she receive?
11. At an annual rate of 5%, how much interest is due every 6 months on a loan of \$100?
12. It was reported that 16 pupils in a homeroom of 40 pupils were absent on the day of a blizzard. What percent of the pupils were absent?
13. A housewife selected two packages of ground beef at a "packaged meat" counter. Together they weighed exactly 2 pounds. If one package she selected weighed 1 pound 4 ounces, what was the weight of the other?
14. By buying a coat during a sale, a girl received a 20% discount. The discount amounted to \$12. What was the original price of the coat?
15. Which has the greatest value: 66%, $\frac{2}{3}$, .80?
16. A boy deposited in his school savings account the money he had saved during the summer. Find the amount of his deposit if he had 10 one-dollar bills, 9 half dollars, 8 quarters, 16 dimes, and 25 nickels.
17. At the annual rate of \$.50 per \$100, how much does it cost for a \$3,000 fire insurance policy for one year?

MATHEMATICS (8TH GRADE)—JANUARY 1959 (2)

18. If a car averages 18 miles to a gallon of gasoline, how many gallons of gasoline will be used on a trip of 810 miles?

19. In a recent year 120 pupils were enrolled in the seventh grades of a junior high school. The following year the seventh grade enrollment was 160 pupils. Find the percent of increase in enrollment.

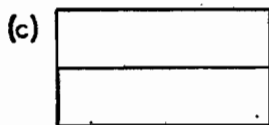
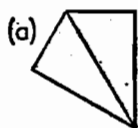
20. The drawing at the right is part of a bar graph showing the population of a small village. How many people lived in the village in 1950?



Directions (21-30): Indicate the correct completion for each of the following by writing on the line at the right the letter *a*, *b*, or *c*:

21. The number of square faces on a cube is (a) 12 (b) 6 (c) 8

22. The figure in which a diagonal has been drawn is



23. The description which best fits congruent figures is that they have (a) the same shape but not the same size (b) the same size but not the same shape (c) the same size and the same shape

24. Two straight lines which meet at right angles are (a) parallel (b) perpendicular (c) vertical

25. The radius of a circle is 10 inches. A point 12 inches from the center of the circle lies (a) on the circle (b) inside the circle (c) outside the circle

26. The equation which expresses the relationship that a certain number n increased by 3 is equal to 9 is (a) $n + 3 = 9$ (b) $n - 3 = 9$ (c) $3n = 9$

27. In the formula $S = 6e^2$, if $e = 3$, then S equals (a) 30 (b) 36 (c) 54

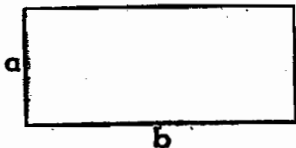
28. If one pencil costs n cents, the cost in cents of 6 pencils is (a)

6n (b) $\frac{n}{6}$ (c) $\frac{6}{n}$

29. If $n - 2 = 8$, the value of n is (a) 4 (b) 6 (c) 10

MATHEMATICS (8TH GRADE)—JANUARY 1959 (3)

30. The perimeter of the rectangle in the diagram is (a) $a + b$ (b) $2a + 2b$ (c) $2ab$



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.

31. A salesman was offered a choice of a monthly salary of \$450 or a commission of 8% on his sales. He accepted the commission basis and sold \$85,900 worth of goods the first year.

- How much did the salesman earn during the year? [4]
- How much would he have earned that year if he had accepted the fixed monthly salary? [3]
- Did his choice result in a larger earning for the year? How much more or less was it? [1, 2]

32. A man's taxable income is \$4,280. The tax instructions tell him to pay 2% on the first \$1,000 of his taxable income, 3% on each of the second and third \$1,000, and 4% on the remainder. Find the total amount of income tax which he must pay. [10]

33. The inside dimensions of a rectangular storage bin are 10 feet 8 inches long, 6 feet 6 inches wide, and 6 feet deep.

- When the bin is filled with wheat to a depth of 3 feet, how many cubic feet of wheat does it contain? [5]
- If one bushel occupies $1\frac{1}{4}$ cubic feet, how many bushels of wheat are there in the bin? [5]

34. Jim buys a bicycle costing \$60 on the installment plan. He must pay \$20 down and \$8 each month thereafter until the bicycle is paid for.

- What is the balance due after the down payment? [2]
- What percent of the cost is required as a down payment? [3]
- In how many months will the bicycle be paid for? [3]
- If the cash price of the bicycle was \$56.20, how much more will it cost under the installment plan? [2]

35. a. Find the value of: $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{8}$. [5]

MATHEMATICS (8TH GRADE)—JANUARY 1959 (4)

b. Find the product of 48.72 and 12.5, and divide the product by 203. [5]

36. a. Solve each of the following equations and check each result.

(1) $3n + 4 = 19$ [2, 1] (2) $\frac{n}{2} - 5 = 7$ [2, 1]

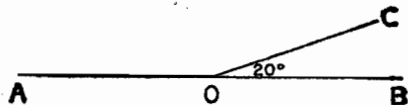
b. For each of the following problems three equations are given. Indicate the equation which could be used to solve the problem by writing on your answer paper, after the proper number, the letter a, b, or c. [Do not solve the equation.] [4]

(1) A girl paid \$1 for 25 greeting cards. Find the average cost per card. (a) $c + 25 = 100$ (b) $\frac{1}{25}c = 100$ (c) $25c = 100$

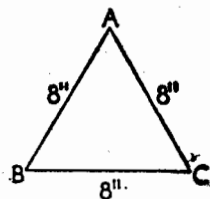
(2) A boy earned \$6 more than his brother. Together they earned \$14. Find the amount each earned.

(a) $n + 6n = 14$ (b) $n + n + 6 = 14$ (c) $n + 6 = 14$

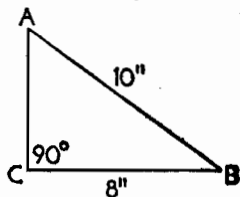
37. a. AB and OC are straight lines. Find the number of degrees in angle AOC . [2]



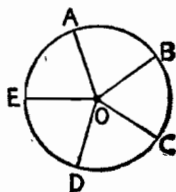
b. How many degrees are there in angle ABC in the diagram? [2]



c. Find the length in inches of side AC in the triangle in the diagram. [2]

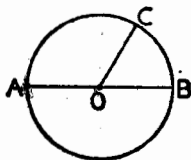


d. In the diagram, arcs AB , BC , CD , DE , and EA are equal. O is the center of the circle. How many degrees are there in angle AOB ? [2]



MATHEMATICS (8TH GRADE)—JANUARY 1959 (5)

- e. O is the center of the circle in the diagram and AB is the diameter. What is the ratio of OC to AB ? [2]



38. A family has an income of \$500 per month. The accompanying graph shows what part is allotted for each purpose.

- a. How much money is set aside each month for rent? [2]
- b. How much is allowed for savings and insurance each month? [2]
- c. If \$25 a month is paid for insurance premiums, how much is left for savings? [2]
- d. How many degrees are used to represent operating expenses? [2]
- e. The amount spent for health and recreation is how much more than the amount spent for operating expenses? [2]

A Family Budget

