The University of the State of New York

REGENTS COMPETENCY TEST

MATHEMATICS

Monday, June 23, 1986 — 9:15 a.m.

The questions on this test measure your computational skills, your knowledge of mathematical concepts, and your ability to solve mathematical problems. Your answers to these questions must be recorded on the separate answer sheet. Use only a black lead pencil on your answer sheet.

When you have completed the test, you must sign the declaration which states that you did not see any of the questions or answers before taking this test and that you have neither given nor received help in answering any of the questions during the test. Your answer sheet cannot be accepted if you fail to sign this declaration.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Part A

Answer all 20 questions in this part. Write your answers on the lines provided in PART A on the separate answer sheet. Use only a black lead pencil on the answer sheet.

1 Add:

$$\begin{array}{r} 7072 \\ 35 \\ +\ 4125 \\ \hline \end{array}$$

2 Subtract 243 from 837.

3 Write $\frac{15}{25}$ in lowest terms.

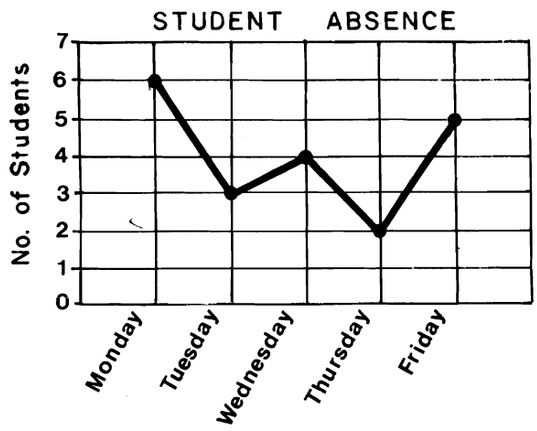
4 Divide: $-12 \div 3$

5 Add: $1.37 + 3.5 + 0.29$

6 Subtract:

$$\begin{array}{r} 10.30 \\ 2.03 \\ \hline \end{array}$$

7 The graph below shows the number of students absent from Mr. Wells' class each day during one week. What was the greatest number of students absent on any one day?



8 Multiply:

$$\begin{array}{r} 8008 \\ \times\ 84 \\ \hline \end{array}$$

9 Divide: $25\overline{)925}$

10 Solve for n: $5n - 4 = 26$

11 Divide: $0.2\overline{)34.2}$

12 If a car averages 30 miles on one gallon of gasoline, how many miles could it travel on $4\frac{1}{2}$ gallons of gasoline?

13 Round 43,729 to the nearest thousand.

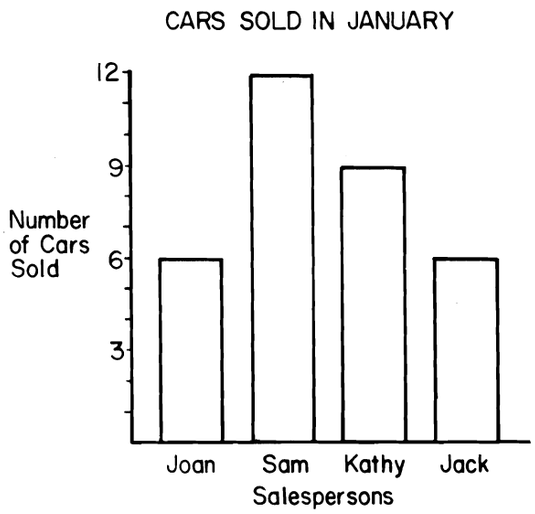
14 Multiply:
$$\begin{array}{r} 4.2 \\ \times\ .56 \\ \hline \end{array}$$

15 What is the mode of the following numbers?

7, 9, 4, 6, 9, 8, 7, 9

16 The formula for the area of a triangle is $A = \frac{bh}{2}$. What is the area of a triangle when $b = 4$ and $h = 5$?

17 The graph below shows the number of cars that four salespersons sold in January. What was the total number of cars sold?



18 Find the perimeter of a rectangle whose length is 12 and whose width is 8.

19 Add: $(-2) + (3) + (-4)$

20 How many centimeters equal 1 meter?

Part B

Answer all 40 questions in this part. Mark your answers in the rows of answer circles provided in PART B on the separate answer sheet. Use only a black lead pencil on the answer sheet.

21 Solve for x: $\frac{2}{5} = \frac{x}{10}$

(a) $37\frac{1}{2}$ (c) 6

(b) 30 (d) 4

22 If each of 8 cakes in a bakery is cut into halves, what is the total number of cake halves?

(a) $\frac{1}{16}$ (c) 16

(b) $\frac{1}{4}$ (d) 4

23 Lori bought a blouse for \$15.78. If she gave the clerk a 20-dollar bill, how much change should she have received?

(a) \$4.22 (c) \$5.22
(b) \$4.32 (d) \$5.32

24 Which is $\frac{13}{3}$ expressed as a mixed number?

(a) $\frac{3}{13}$ (c) $4\frac{1}{3}$

(b) $3\frac{1}{4}$ (d) 11

25 Which mathematical sentence is represented by the statement below?

If 8 is added to a certain number, the result is 42.

(a) $N - 8 = 42$
(b) $N + 8 = 42$
(c) $N \times 8 = 42$
(d) $N = 42 + 8$

26 Ruth deposited in a savings account 10 one-dollar bills, 9 half-dollars, 8 quarters, 16 dimes, 25 nickels, and 12 pennies. What was the total amount she deposited in her savings account?

(a) \$19.47 (c) \$80.00
(b) \$31.35 (d) \$107.67

27 What is the value of 8^3?

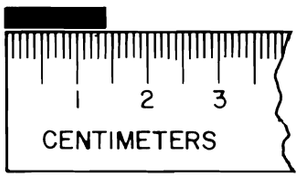
(a) 24 (c) 512
(b) 64 (d) 4096

28 What is the sum of $\frac{4}{15}$ and $\frac{3}{15}$?

(a) $\frac{7}{15}$ (c) $\frac{7}{225}$

(b) $\frac{12}{15}$ (d) $\frac{12}{225}$

29 What is the length of the bar shown in the diagram below?



(a) 1.4 cm
(b) 14 cm
(c) 1.4 m
(d) 14 m

30 Gloria has \$259.73 in her savings account. If she makes deposits of \$20.75 and \$33.50, what is the new total in her account?

(a) \$205.48
(b) \$246.98
(c) \$313.98
(d) \$802.23

31 If 197 students each use 21 sheets of paper per week, the best estimate of the total number of sheets of paper used each week is

(a) 10
(b) 220
(c) 600
(d) 4000

32 A square root of 16 is

(a) 1
(b) 8
(c) 16
(d) 4

33 Divide: $\frac{1}{3} \div 6$

(a) $\frac{1}{18}$
(b) $\frac{1}{9}$
(c) $\frac{1}{3}$
(d) 18

34 The diameter of a circle is 8 centimeters. What is the circumference of the circle? (Use $\pi = 3.14$)

(a) 200.96 cm
(b) 50.24 cm
(c) 25.12 cm
(d) 12.56 cm

35 What is the mean (average) of the following test scores?

92, 87, 73, 64, 84

(a) 73
(b) 80
(c) 84
(d) 400

36 The fraction $\frac{1}{4}$ is equivalent to

(a) 0.14
(b) 0.25
(c) 0.41
(d) 4.1

37 Michael earns \$125 each week. He has the following deductions taken from his earnings each week: \$7.31 for social security; \$7.70 for Federal tax; \$2.90 for State tax; \$2.50 for health insurance; and \$2.00 for union dues. How much money does Michael receive each week after these deductions?

(a) \$147.41
(b) \$110.00
(c) \$102.59
(d) \$22.41

38 A rectangular floor has a length of 12 feet and a width of 9 feet. How many tiles that are one square foot in area are needed to cover the floor?

(a) 9
(b) 21
(c) 42
(d) 108

39 Which integer has the greatest value?

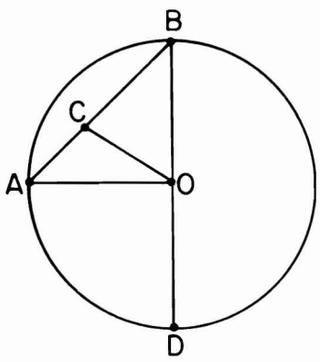
(a) −8
(b) −15
(c) −3
(d) 0

40 What is the least common denominator of the following fractions?

$$\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$$

(a) 60
(b) 20
(c) 15
(d) 12

41 In the circle below, which line segment is a radius?



(a) $\overline{AB}$
(b) $\overline{BD}$
(c) $\overline{OC}$
(d) $\overline{OA}$

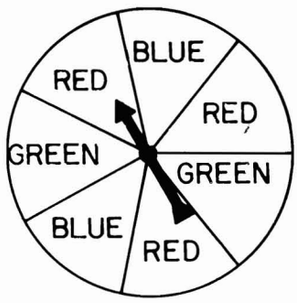
42 Maura is paid at a rate of \$4 per hour. If she works for $3\frac{1}{2}$ hours, how much does she earn?

(a) \$14.00
(b) \$12.50
(c) \$10.00
(d) \$7.50

43 Which is the number 14.07 written in words?

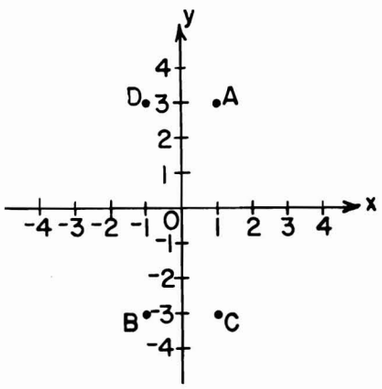
(a) fourteen and seven tenths
(b) fourteen and seven hundredths
(c) one hundred forty and seven tenths
(d) one thousand four hundred seven

44 The spinner below is separated into equal areas. Each area is labeled by a color. What is the probability that the spinner will stop in an area labeled RED on the next spin?



(a) $\frac{3}{4}$
(b) $\frac{3}{7}$
(c) $\frac{3}{1}$
(d) $\frac{4}{3}$

45 On the graph below, which point has coordinates (1,–3)?



(a) *A*
(b) *B*
(c) *C*
(d) *D*

46 If the sales tax rate is 8.25%, how much tax must be paid on an item that costs $100?

(a) $0.83
(b) $8.25
(c) $82.50
(d) $825.00

47 Fred bought a camera for a discount of 40% from the original price of $200. How much money did Fred save?

(a) $5.00
(b) $8.00
(c) $50.00
(d) $80.00

48 Multiply: $2\frac{1}{2} \times \frac{3}{4}$

(a) $3\frac{1}{3}$
(b) 2
(c) $1\frac{7}{8}$
(d) $1\frac{1}{2}$

49 On a blueprint for a house, $\frac{1}{2}$ inch represents 1 foot.

If the length of a bedroom shown on the blueprint is 10 inches, how many feet long is the actual bedroom in the house?

(a) 5 feet
(b) 10 feet
(c) 15 feet
(d) 20 feet

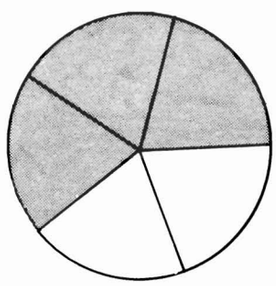
50 The following 7 items were purchased at a lumber store:

Quantity	*Item*	*Price*
3	2″ × 4″ × 8′ Studs	$2.19 each
4	Duplex plugs	$0.98 each

What was the total cost of the items?

(a) $3.17
(b) $3.92
(c) $6.57
(d) $10.49

51 What percent of the figure below is shaded?

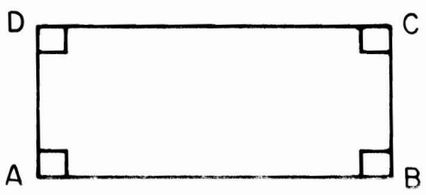


(a) 60%
(b) 20%
(c) 30%
(d) 40%

52 What is 28% of 400?

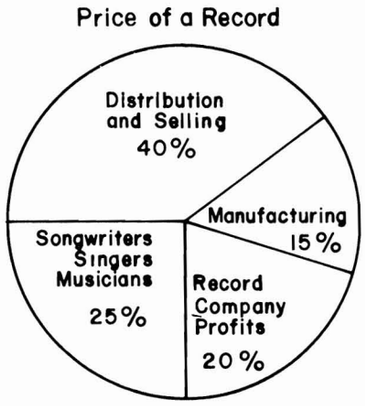
(a) 1.12
(b) 11.2
(c) 112
(d) 11,200

53 Which word best describes the relationship between $\overline{AB}$ and $\overline{BC}$ in the rectangle below?



(a) parallel
(b) perpendicular
(c) equal
(d) vertical

54 The circle graph below shows how money from the sale of a certain record is divided. If the price of the record is \$8.00, what is the cost of manufacturing the record?



(a) \$1.20
(b) \$2.00
(c) \$1.60
(d) \$3.20

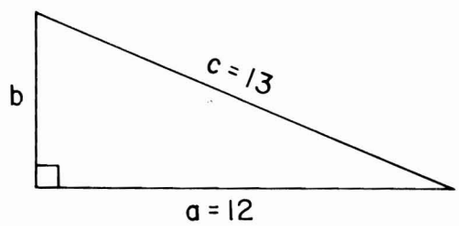
55 If 3 cans of tomato sauce cost \$.99, how much would 12 cans of tomato sauce cost?

(a) \$11.88
(b) \$8.91
(c) \$3.96
(d) \$2.97

56 Which number equals $7\frac{2}{5} - 4\frac{4}{5}$?

(a) $2\frac{1}{5}$
(b) $2\frac{3}{5}$
(c) $3\frac{1}{5}$
(d) $3\frac{2}{5}$

57 In the right triangle shown below, $c = 13$ and $a = 12$. Using the Pythagorean theorem, $c^2 = a^2 + b^2$, what is the length of b?

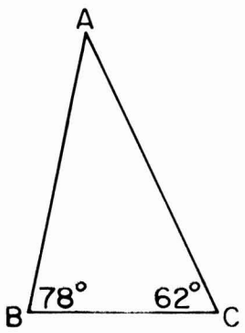


(a) 1
(b) 5
(c) 12.5
(d) 25

58 Which is a composite number?

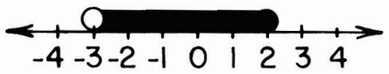
(a) 5
(b) 2
(c) 3
(d) 4

59 In triangle *ABC* below, what is the measure of angle *A*?



(a) 40°
(b) 140°
(c) 180°
(d) 220°

60 Which open sentence is represented by the graph below?



(a) $-3 \leq x \leq 2$
(b) $-3 < x \leq 2$
(c) $-3 < x < 2$
(d) $-3 \leq x < 2$