MATHEMATICS

Friday, January 26, 1996 – 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 No. 2 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 No. 2 pencil on the answer sheet.
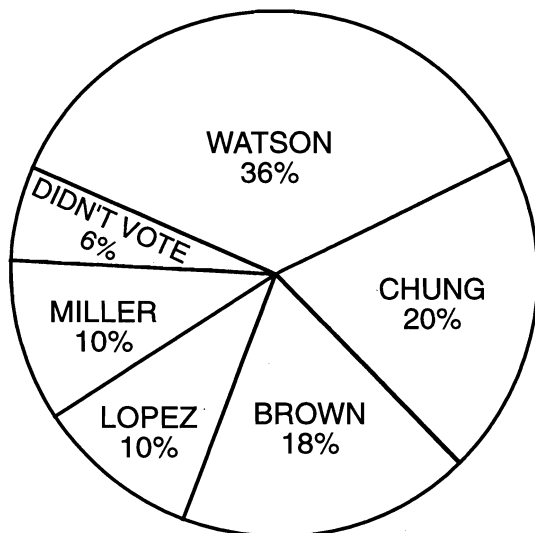
1 Add:
$$\begin{array}{r} 72 \\ 536 \\ + 298 \\ \hline \end{array}$$

2 Write the numeral for three thousand two hundred six.

3 The graph below shows how the people of a city voted in the election for mayor.

VOTES FOR MAYOR

Which candidate received exactly half the number of votes that Watson received?

4 Find the value of 3^3.

5 Subtract 378 from 530.

6 Write $8\frac{2}{3}$ as an improper fraction.

7 Round 52,862 to the nearest hundred.

8 Reduce $\frac{18}{24}$ to lowest terms.

9 Solve for x: $2x - 4 = 10$

10 On a trip, Irena's car travels an average of 25 miles per gallon of gasoline. How many gallons of gasoline can she expect to use on a trip of 450 miles?

11 Find the sum of 2.51 and 3.6.

16 Divide: $(-18) \div (-9)$

12 What is the sum of −5 and +2?

17 What is the product of 9.72 and 100?

13 The ages of the players on a baseball team are 9, 11, 8, 10, 10, 9, 11, 8, and 9. What is the mode of these ages?

18 When Diane went bowling, her scores were 95, 82, 110, 97, and 76. What is the mean (average) of these five scores?

14 Divide: $27 \overline{)6561}$

19 What is $\frac{7}{8}$ of 24?

15 Multiply: 568
                $\times 27$

20 One morning the temperature was −6°C. By noon, the temperature was 9°C. What was the total number of degrees the temperature increased?

Part B

Answer all 40 questions in this part. Mark your answers in the rows of answer circles in PART B on the separate answer sheet. Use only a No. 2 pencil on the answer sheet.
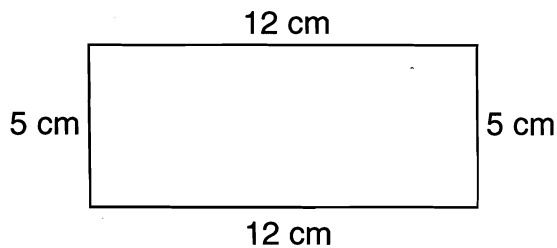
21 Videocassette tapes are priced three for $15.75. What is the cost of one tape?

(1) $0.53   (3) $5.75
(2) $5.25   (4) $7.85

22 Which combination of coins is worth 55 cents?

(1) 3 nickels and 4 dimes
(2) 5 nickels and 2 dimes
(3) 1 dime and 2 quarters
(4) 4 dimes and 1 quarter

23 What is the perimeter of the figure below?
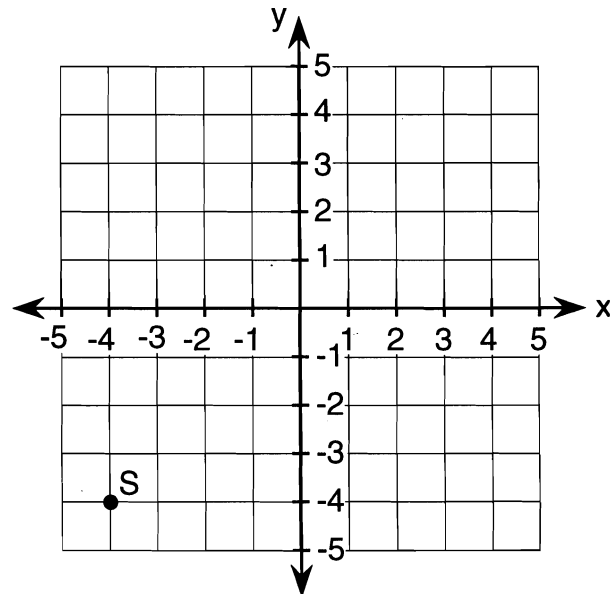
12 cm

5 cm   5 cm

12 cm

(1) 17 cm   (3) 34 cm
(2) 24 cm   (4) 60 cm

24 On a map, 1 centimeter represents 30 kilometers. If two cities are 6 centimeters apart on the map, how many kilometers apart are the two cities?

(1) 5   (3) 180
(2) 36   (4) 210

25 On the graph below, what are the coordinates of point S?

(1) (−4,−4)   (3) (4,−4)
(2) (−4,4)   (4) (4,4)

26 Solve for x: $\quad \dfrac{2}{5} = \dfrac{x}{25}$

(1) 62.5   (3) 15
(2) 20   (4) 10

27 What value does the digit 5 have in the number 72,581?

(1) 5   (3) 500
(2) 50   (4) 5,000

28 Malcolm purchased a compact disc player with a downpayment of $125 and eight monthly installments of $25 each. What was the total cost of the disc player?
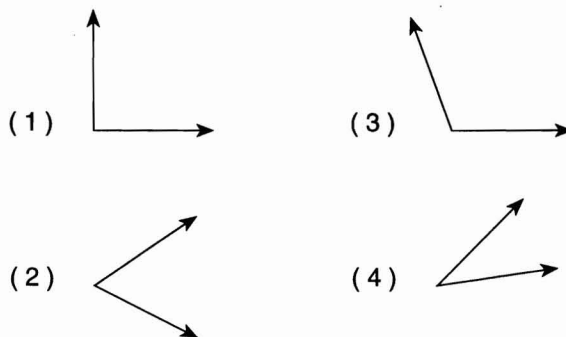
(1) $250   (3) $350
(2) $325   (4) $450

29 Which number is *not* between −4 and 5?

(1) 0   (3) 7
(2) −2   (4) 4

30 Sharon received $21.25 for 5 hours of work. What was her hourly wage?

(1) $4.25   (3) $17.00
(2) $5.25   (4) $106.25

31 Which figure best represents an angle whose measure is 90°?

(1)   (3)

(2)   (4)

32 A restaurant bill was $16.00. If a 15% tip was left for the waiter, what was the amount of the tip?

(1) $0.24   (3) $16.24
(2) $2.40   (4) $18.40
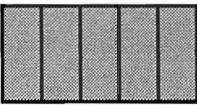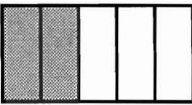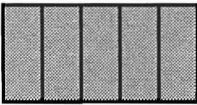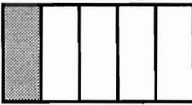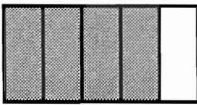
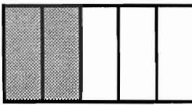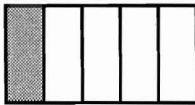**33** Which number has 2, 5, and 7 as its prime factors?

(1) 14   (3) 37
(2) 17   (4) 70

34 What is the least common denominator (LCD) of $\dfrac{1}{2}$, $\dfrac{1}{3}$, and $\dfrac{1}{4}$?

(1) 6   (3) 10
(2) 8   (4) 12

35 In which set below is the shaded part equivalent to $1\frac{2}{5}$?

(1)   +

(2)   +

(3)   +

(4)   +

36 Juan had \$146 in his savings account. He deposited \$14 and later withdrew \$12. What was his balance after the withdrawal?

(1) \$172   (3) \$158
(2) \$160   (4) \$148

37 Josh has a book with 247 pages. He has read 200 pages. Which fraction shows the ratio of the number of pages Josh has read to the total number of pages in the book?

(1) $\frac{47}{247}$ (3) $\frac{200}{247}$

(2) $\frac{47}{200}$ (4) $\frac{200}{447}$

38 A bag contains three green marbles and four blue marbles. If one marble is drawn from this bag at random, what is the probability that the marble will be blue?

(1) $\frac{7}{4}$ (3) $\frac{3}{7}$

(2) $\frac{4}{7}$ (4) $\frac{1}{4}$

39 The square of a positive number is 36. The number is

(1) 6   (3) 72
(2) 18   (4) 1,296

40 Four is 50% of what number?

(1) 100   (3) 8
(2) 50   (4) 4
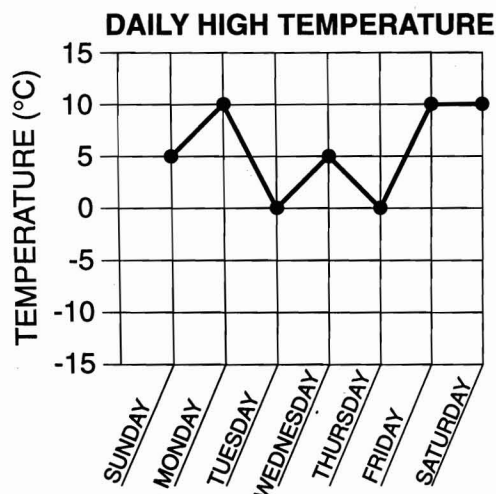
41 The sales tax rate in a city is $8\frac{1}{4}$%. Which amount is the best approximation of the tax on a \$20.00 shirt?

(1) \$0.16   (3) \$1.60
(2) \$1.00   (4) \$16.00

42 A telephone call costs \$0.50 for the first 2 minutes and \$0.35 for each additional minute. What is the total cost of an 8-minute call?

(1) \$0.85   (3) \$2.95
(2) \$2.60   (4) \$4.00

43 The graph below shows the high temperature each day during one week.

DAILY HIGH TEMPERATURE


Between which two consecutive days did the high temperature decrease by exactly 5°C?

(1) Sunday and Monday
(2) Monday and Tuesday
(3) Wednesday and Thursday
(4) Friday and Saturday

44 Which fraction is the largest?

(1) $\frac{1}{3}$

(3) $\frac{1}{21}$

(2) $\frac{1}{7}$

(4) $\frac{1}{42}$

45 The graph below shows how many airplane flights arrived and departed from each of three airports during January 1993.

AIRPORT USE FOR JANUARY 1993
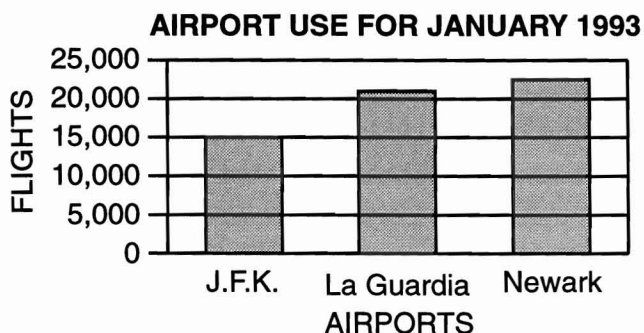
What is the best estimate of how many *more* flights used Newark Airport than J.F.K. Airport in January 1993?

(1) 22,000   (3) 7,000
(2) 2,000   (4) 15,000

46 A train leaves Northport at 10:05 a.m. to travel to New York City. If this trip takes $1\frac{1}{4}$ hours, what time will the train arrive in New York City?

(1) 10:20 a.m.   (3) 11:20 a.m.
(2) 11:05 a.m.   (4) 11:30 a.m.

47 Which three decimals are written in order from least to greatest?

(1) 0.34, 0.22, 0.45
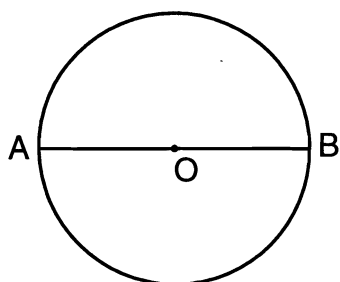(2) 0.34, 0.45, 0.22
(3) 0.22, 0.45, 0.34
(4) 0.22, 0.34, 0.45

48 A refrigerator that usually sells for $500 is on sale for 10% off. What is the difference between the regular price and the sale price?

(1) $5.00   (3) $450.00
(2) $50.00   (4) $550.00

49 Which is the best estimate of the height of a door?

(1) 2 millimeters   (3) 2 kilometers
(2) 2 centimeters   (4) 2 meters

50 The circle below has its center at point O.

Which term describes $\overline{AB}$?

(1) diameter   (3) secant
(2) circumference   (4) radius

51 Which number is the closest estimate of the product of 297 and 31?

(1) 900   (3) 9,000
(2) 6,000   (4) 90,000

52 What is the greatest common factor (GCF) of 5, 10, and 50?

(1) 5   (3) 50
(2) 10   (4) 100

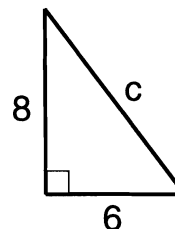**53** If $n\%$ of 75 is 75, what is n?

(1) 1   (3) 100
(2) 10   (4) 1000

54 How many meters are equal to 450 centimeters?

(1) 4.5   (3) 450
(2) 45   (4) 45,000

55 What is the value of c in the right triangle below?

(1) 10   (3) 100
(2) 12   (4) $\sqrt{10}$

56 Kassim has to paint a rectangular floor that measures 15 feet by 25 feet. If a gallon of paint covers 100 square feet, how many gallons does he need to do the job?

(1) 1   (3) 3
(2) 2   (4) 4

57 Which statement is represented by the algebraic expression $5 - x$?

(1) 5 less than x
(2) 5 decreased by x
(3) the product of 5 and x
(4) the quotient of 5 and x

58 Using the formula $A = \pi r^2$, find the area of a circle whose radius is 3. (Use $\pi = 3.14$)

(1) 113.04   (3) 18.84
(2) 28.26   (4) 9.42

59 Subtract: $\quad 4$
$$\underline{\quad 1\tfrac{1}{3} \quad}$$

(1) $2\tfrac{1}{3}$ (3) $2\tfrac{2}{3}$

(2) $3\tfrac{1}{3}$ (4) $3\tfrac{2}{3}$

60 Divide: $\quad 9 \div 1\tfrac{5}{6}$

(1) $\tfrac{2}{33}$ (3) $4\tfrac{10}{11}$

(2) $\tfrac{11}{54}$ (4) $16\tfrac{1}{2}$