

# REGENTS COMPETENCY TEST

## MATHEMATICS

**Wednesday, January 23, 2002 — 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.**

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THE STATE EDUCATION DEPARTMENT  
ALBANY, NEW YORK 12234**

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**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.

<p><b>1</b> Write the numeral five thousand twenty-three.</p>	<p><b>7</b> Multiply: <math display="block">\begin{array}{r} 406 \\ \times 27 \\ \hline \end{array}</math></p>
<p><b>2</b> Add: <math>(-8) + (-3)</math></p>	<p><b>8</b> Multiply: <math display="block">\begin{array}{r} 3.62 \\ \times 0.7 \\ \hline \end{array}</math></p>
<p><b>3</b> Add: <math>8.45 + 0.652 + 1.5</math></p>	<p><b>9</b> Multiply: <math>\frac{2}{3} \times \frac{8}{9}</math></p>
<p><b>4</b> Divide: <math>6 \overline{)25.32}</math></p>	<p><b>10</b> In five basketball games, Kaitlin scored the points listed below:</p> <p style="text-align: center;">28, 25, 26, 30, 26</p> <p>What was the average (mean) number of points she scored for the five games?</p>
<p><b>5</b> Subtract 79 from 804.</p>	
<p><b>6</b> What is 744 rounded to the <i>nearest hundred</i>?</p>	<p><b>11</b> Add: <math display="block">\begin{array}{r} 6317 \\ 102 \\ + 783 \\ \hline \end{array}</math></p>

**12** What is the mode of the following set of numbers?

9, 12, 10, 9, 11

**13** Divide:  $78 \overline{)2808}$

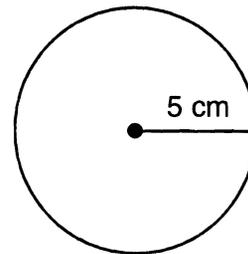
**14** Add:  $\frac{7}{12} + \frac{1}{3}$

**15** What is the only prime number between 45 and 50?

**16** One morning the temperature was  $-8^{\circ}\text{C}$ . Later that day the temperature rose to  $17^{\circ}\text{C}$ . How many degrees did the temperature increase?

**17** Divide:  $-20 \div -4$

**18** If the radius of the circle below is 5 centimeters, what is the length, in centimeters, of the diameter?



**19** What is the greatest common factor of 12 and 40?

**20** From  $\frac{8}{10}$  subtract  $\frac{1}{2}$ .

## 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 No. 2 pencil on the answer sheet.

21 The fraction  $\frac{19}{3}$  may be expressed as which mixed number?

- (1)  $5\frac{1}{3}$                       (3)  $7\frac{2}{3}$   
(2)  $6\frac{1}{3}$                       (4)  $16\frac{1}{3}$

22 Which unit should be used when measuring the length of a pencil?

- (1) meters                      (3) kilometers  
(2) liters                        (4) centimeters

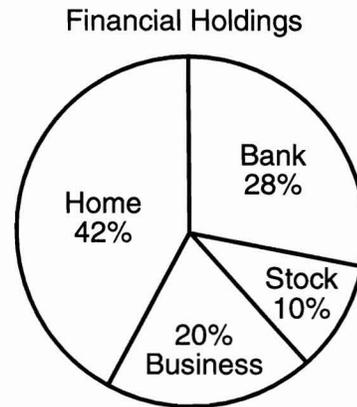
23 Which fraction has *not* been reduced to lowest terms?

- (1)  $\frac{2}{3}$                               (3)  $\frac{6}{15}$   
(2)  $\frac{7}{8}$                               (4)  $\frac{5}{12}$

24 Juan had a bank balance of \$102.30. He made a deposit of \$57.36 and a withdrawal of \$73.05. What is the new balance of his account?

- (1) \$86.61                      (3) \$132.81  
(2) \$117.99                    (4) \$232.71

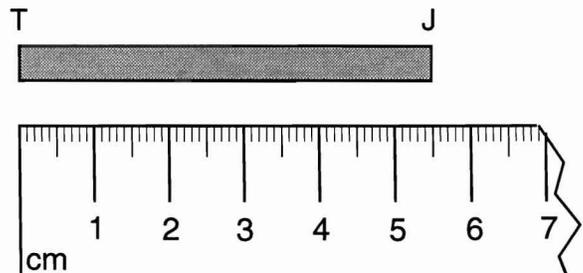
25 The circle graph below shows Ms. Chung's financial holdings.



In which area does she have most of her financial holdings?

- (1) bank                              (3) home  
(2) business                        (4) stock

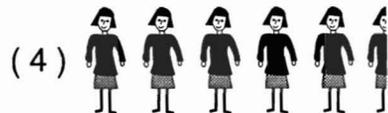
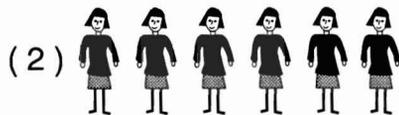
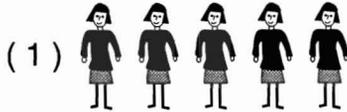
26 What is the length of line segment  $TJ$  shown below?



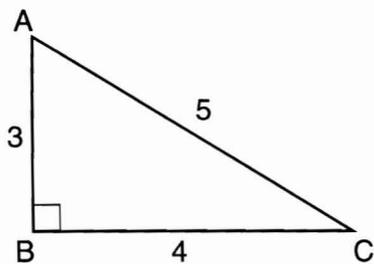
- (1) 0.55 cm                      (3) 5.5 cm  
(2) 5 cm                            (4) 55 cm



27 Each  represents 1,000 people. If Mathville has a population of 5,500 people, which pictograph correctly represents Mathville's population?



28 In the triangle below, what is the ratio of  $BC$  to  $AC$ ?



- (1)  $\frac{3}{5}$                       (3)  $\frac{3}{4}$   
(2)  $\frac{4}{5}$                       (4)  $\frac{4}{3}$

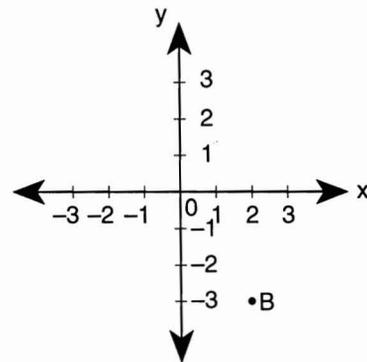
29 If tickets cost \$5 each, what is the *least* number of tickets that must be sold to collect \$198?

- (1) 100                      (3) 10  
(2) 200                      (4) 40

30 A bag contains five blue marbles, three red marbles, and two green marbles. A marble is chosen at random from the bag. What is the probability that it is green?

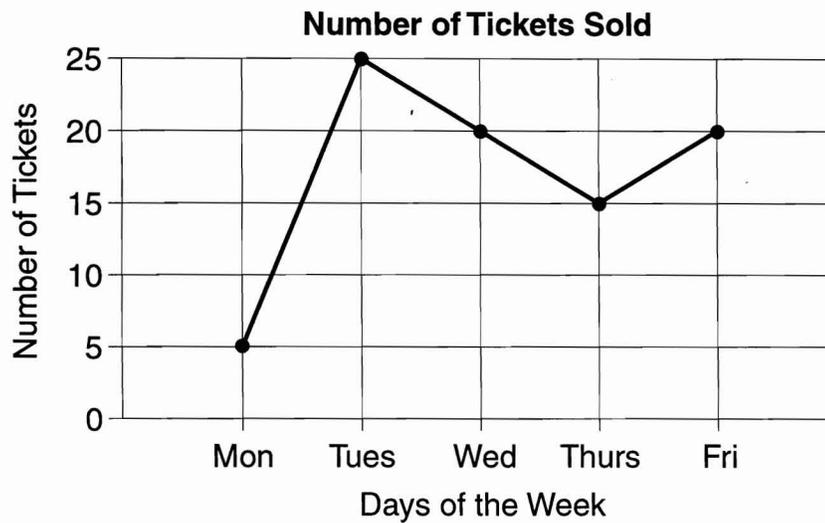
- (1)  $\frac{2}{10}$                       (3)  $\frac{2}{3}$   
(2) 2                          (4)  $\frac{2}{5}$

31 What are the coordinates of point  $B$  in the diagram below?



- (1)  $(-3, -2)$                       (3)  $(2, -3)$   
(2)  $(3, 2)$                           (4)  $(2, 3)$

**32** The graph below shows the number of tickets sold on each of 5 days.



How many more tickets were sold on Tuesday than on Monday?

- |        |        |
|--------|--------|
| (1) 5  | (3) 25 |
| (2) 20 | (4) 30 |

**33** Tamika bought a tape for \$6.49. If she gave the cashier a \$10 bill, how much change should she have received?

- |            |            |
|------------|------------|
| (1) \$3.51 | (3) \$4.51 |
| (2) \$3.61 | (4) \$4.61 |

**36** Jamal left his house at 9:15 a.m. He walked for 1 hour and 20 minutes. At what time did he stop walking?

- |                |                |
|----------------|----------------|
| (1) 9:35 a.m.  | (3) 10:35 a.m. |
| (2) 10:15 a.m. | (4) 10:45 a.m. |

**34** Solve for  $x$ :  $\frac{3}{5} = \frac{12}{x}$

- |        |        |
|--------|--------|
| (1) 9  | (3) 15 |
| (2) 10 | (4) 20 |

**37** Which digit is in the hundredths place in the number 9.0248?

- |       |       |
|-------|-------|
| (1) 0 | (3) 8 |
| (2) 2 | (4) 4 |

**35** Which number is equal to  $2^3$ ?

- |       |        |
|-------|--------|
| (1) 6 | (3) 9  |
| (2) 8 | (4) 23 |

**38** Which number is a square root of 36?

- |        |           |
|--------|-----------|
| (1) 6  | (3) 18    |
| (2) 12 | (4) 1,296 |

39 Sheri bought an electric guitar for \$460. She made an \$85 downpayment and agreed to make monthly payments of \$75 each. How many months will it take her to pay for the guitar?

- (1) 5                      (3) 3  
(2) 2                      (4) 4

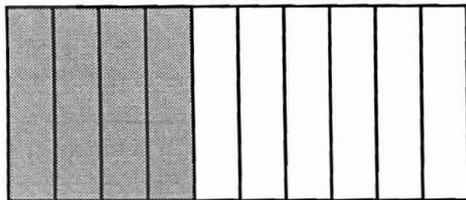
40 An egg truck carrying 200 dozen eggs was involved in an accident. Half of the eggs were broken. What is the total number of eggs broken in this accident?

- (1) 6                      (3) 400  
(2) 100                      (4) 1,200

41 On a map, 1 inch represents 20 miles. If the actual distance between two cities is 120 miles, what is the distance on the map between the cities?

- (1) 6 in                      (3) 8 in  
(2) 7 in                      (4) 10 in

42 What percent of the rectangle below is shaded?

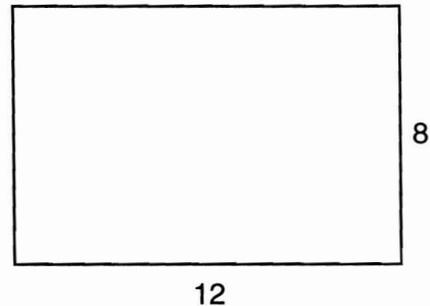


- (1) 4%                      (3) 40%  
(2) 14%                      (4) 140%

43 If Kathy earns \$8.25 an hour, how much will she earn working from 8:00 a.m. to 12 noon?

- (1) \$24.75                      (3) \$33.00  
(2) \$32.00                      (4) \$41.25

44 What is the perimeter of the rectangle below?



- (1) 20                      (3) 48  
(2) 40                      (4) 96

45 Which fraction has the *smallest* value?

- (1)  $\frac{1}{10}$                       (3)  $\frac{2}{5}$   
(2)  $\frac{1}{2}$                       (4)  $\frac{1}{4}$

46 How many square feet of carpet are needed to cover the floor of a room that measures 9 feet by 12 feet?

- (1) 21                      (3) 98  
(2) 42                      (4) 108

47 Which open sentence is represented by the graph below?



- (1)  $x > 0$                       (3)  $x = 3$   
 (2)  $x < 3$                       (4)  $x > 3$

48 The price of a baseball glove is \$40. If the sales tax rate is 7%, what is the total cost of the baseball glove?

- (1) \$37.20                      (3) \$47.00  
 (2) \$42.80                      (4) \$68.50

49 Divide:  $\frac{3}{7} \div \frac{2}{3}$

- (1)  $\frac{2}{7}$                               (3)  $\frac{9}{14}$   
 (2)  $\frac{14}{9}$                               (4)  $\frac{6}{21}$

50 Using the formula  $C = 2\pi r$ , what is the circumference of a circle with a radius of 6? (Use  $\pi = 3.14$ )

- (1) 28.27                      (3) 75.36  
 (2) 37.68                      (4) 113.04

51 What is 20% of 70?

- (1) 0.14                      (3) 140  
 (2) 14                      (4) 1,400

52 The chart below shows some activities and the number of people who participated in these activities last year.

Activity	Participants (in millions)
Biking	79.4
Fishing	91.0
Picnicking	123.8

According to this chart, how many people went picnicking?

- (1) 123,800                      (3) 12,380,000  
 (2) 1,238,000                      (4) 123,800,000

53 A television originally priced at \$600 is on sale for  $\frac{1}{5}$  off. What is the sale price of the television?

- (1) \$480                      (3) \$420  
 (2) \$425                      (4) \$300

54 Which value of  $x$  will make the sentence  $2x + 1 > 7$  a true statement?

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

55 In the formula  $p = 2\ell + 2w$ , what is the value of  $p$  when  $\ell = 73$  and  $w = 28$ ?

- (1) 56                              (3) 146  
 (2) 101                              (4) 202

**56** What is the prime factorization of 70?

- (1)  $2 \times 35$                       (3)  $2 \times 5 \times 7$   
(2)  $7 \times 10$                       (4)  $5 \times 14$

**59** A bill for dinner in a restaurant was \$29.98.  
What is the best estimate of a 15% tip?

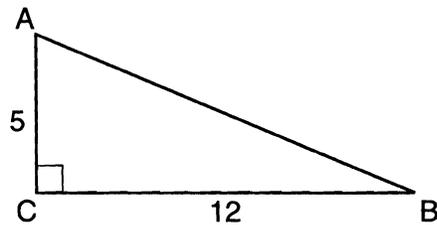
- (1) \$0.45                      (3) \$3.00  
(2) \$4.50                      (4) \$4.00

**57** Which statement represents the sentence below?

Two more than a number,  $x$ , is 20.

- (1)  $x + 2 = 20$                       (3)  $2x = 20$   
(2)  $x + 2 > 20$                       (4)  $x + 20 = 2$

**60** In the right triangle below, what is the length of  $\overline{AB}$ ?



- (1) 13                      (3)  $\sqrt{119}$   
(2) 17                      (4) 169

**58** Which expression has a value of 14?

- (1)  $5 + 4 \times 2 + 1$   
(2)  $(5 + 4) \times (2 + 1)$   
(3)  $(5 + 4) \times 2 + 1$   
(4)  $5 + 4 \times (2 + 1)$