INTRODUCTION

This booklet contains questions about mathematics for you to answer. You will be able to answer some of the questions quickly and others will require more thought. Please do not feel discouraged if you are not absolutely sure of an answer. Some questions will ask about things you have covered in class, but others will not. Please do your best to answer each question. If you are not sure of the answer, read the question again, and make your best guess.

MARKING YOUR ANSWERS

Each question is followed by a set of possible answers labeled A, B, C, etc. Read each question carefully, then choose the one answer you think is the best, and darken in the letter on your Answer Sheet next to the number for that question. Be sure to mark only one letter for each question. Do not skip any questions.

Do not make any stray marks on your Answer Sheet. Do all of your calculations on the Question Booklet, and use the Answer Sheet only to record your answers.

If you have any questions while taking this test, raise your hand, and the person giving the test will come to your seat to help you.
1. Here are the ages of five children:
   13, 8, 6, 4, 4
   What is the average age of these children?
   (A) 4  (B) 6  (C) 7  (D) 8  (E) 9  (F) 13

2. Which of the following sets of numbers CANNOT be lengths of the sides of a triangle?
   (A) 3, 6, 8  (B) 10, 8, 4  (C) 7, 2, 6  (D) 8, 4, 2  (E) 3, 4, 5

3. Allen’s batting average is 0.425. What is his batting average expressed as a percent?
   (A) 0.0425%  (B) 4.25%  (C) 42.5%  (D) 425%

4. If an object is measured to the nearest centimeter there may be some error. How large could the error be?
   (A) 0.1 centimeter  (B) 0.5 centimeter  (C) 1 centimeter  (D) 5 centimeters

5. If you add the page numbers for two facing pages in a book, the sum is 89. What is one of the page numbers?
   (A) 40  (B) 44  (C) 89  (D) Any of the above

6. The length of a box was measured and found to be 7 centimeters to the nearest centimeter. Which of these could have been the length if the box was measured with greater precision?
   (A) 6.4 cm  (B) 7.9 cm  (C) 7.62 cm  (D) 6.7 cm

7. When the students in Mrs. Bird’s room are put in teams of 2 or 5 or 6, there is always 1 student left over. How many students are in Mrs. Bird’s room if there are fewer than 50?
   (A) 11  (B) 29  (C) 30  (D) 31

8. This is a picture of a block of wood.

   If you looked straight down at the top of the block of wood shown above, what shape would you see?

   (A)  (B)  (C)  (D)
9. One kilogram is how many grams?
   (A) 10
   (B) 100
   (C) 1000

   > Questions 10-12 refer to the following picture.

![Dice](image)

10. Scott is rolling a number cube with 1, 2, 3, 4, 5 and 6 dots on its faces. What is the probability of Scott getting a 4 on his next roll?

   (A) 0
   (B) 6
   (C) 6
   (D) \( \frac{3}{6} \)
   (E) 6
   (F) \( \frac{5}{6} \)

11. Scott rolls the number cube again. What is the probability of Scott NOT getting a 4 on this roll?

   (A) 0
   (B) 6
   (C) 6
   (D) \( \frac{3}{6} \)
   (E) 6
   (F) \( \frac{5}{6} \)

12. Scott rolls five 5’s in a row. What is the probability of getting a 5 on his next roll?

   (A) 0
   (B) 6
   (C) 6
   (D) \( \frac{3}{6} \)
   (E) \( \frac{4}{6} \)
   (F) \( \frac{5}{6} \)

13. Carlos’ basketball team won 75% of its games last season. If they played 80 games, how many games did they win?

   (A) 20
   (B) 60
   (C) 68
   (D) 75

14. \( 61 + 42 + 57 + 46 + \square = 250 \)

   Which of the following is closest to the number that goes in the box?

   (A) 25
   (B) 50
   (C) 75
   (D) 100
15. A coin is tossed and a die is rolled. What is the probability that the coin comes up heads and the die comes up 3?

(A) \(\frac{1}{12}\)  (C) \(\frac{1}{5}\)

(B) \(\frac{1}{8}\)  (D) \(\frac{6}{12}\)  

16. 

3 \(\circ\) 4 = 10  8 \(\circ\) 8 = 24  
5 \(\circ\) 4 = 14  10 \(\circ\) 9 = 29  
6 \(\circ\) 1 = 13  16 \(\circ\) 2 = 34

In each number sentence above, the \(\circ\) represents an operation on the two given numbers. According to the pattern, what is 11 \(\circ\) 10?

(A) 24  (C) 32  
(B) 31  (D) 37  

17. On the average, a baby's head is one-fourth the total length of the baby. If a baby's head is 10 centimeters long, about how long is the baby?

(A) 2.5 cm  (C) 24 cm  
(B) 14 cm  (D) 40 cm  

18. If a triangle has two equal sides, what can you say about the angles of the triangle?

(A) Two angles must be equal.  (C) Two angles must be 45 degree angles.  
(B) One angle must be a right angle.  (D) All three angles must be equal.  

19. Find the quotient: \(\frac{10}{5}\) =

(A) \(\frac{1}{2}\)  (D) \(\frac{1}{2}\)

(B) \(-\frac{1}{2}\)  (E) \(\frac{1}{2}\)

(C) \(\frac{1}{5}\)

20. 

For the figure above, which of the following must be true?

I. \(r = t\)  
II. \(s = u\)  
III. \(s + t = 180\)

(A) I only  (C) I and II only  
(B) III only  (D) I, II, and III  

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21. Find the quotient: \( \frac{15}{5} = \)
   (A) 3  (D) 5
   (B) -3  (E) 20
   (C) -5

22. 7 is what percent of 175?
   (A) 4%  (C) 25%
   (B) 12.25%  (D) 40%

23. Which one of the following is the LARGEST unit of measurement?
   (A) centimeter  (C) meter
   (B) kilometer  (D) millimeter

24. Bill made the lowest score on the test. He only got 27 points. The teacher said the class mean was 63 and the range was 61. Jane made the highest score on the test. What score did Jane make?
   (A) 61  (C) 88
   (B) 63  (D) 90

25. What are the coordinates of point A?
   (A) (2,4)  (D) (2,-4)
   (B) (-4,-2)  (E) (-2,-4)
   (C) (-2,4)

26. If \( x \) is a real number, which one of the following is the graph of the solution set of \( 3x \geq 18 \)?

   (A) 
   (B) 
   (C)
27. The length of a side of this square is 6. What is the radius of the circle?

(A) 2  
(B) 3  
(C) 4  
(D) 6  
(E) 8  
(F) 9  

28. Dawn has 3 skirts and 5 blouses. How many different skirt-blouse outfits can she make with these?

(A) 3  
(B) 5  
(C) 8  
(D) 15  

29. A penny was tossed 20 times. Which of the following is most likely to be the number of times heads came up?

(A) 0  
(B) 2  
(C) 5  
(D) 9  
(E) 19  

30. If you turn the square figure shown above about its center so that the corner labeled R ends up at S, which diagram shows what the figure will look like?

(A)  
(B)  
(C)  
(D)  

31. What is 8% of 25?

(A) 2  
(B) 20  
(C) 31.25  
(D) 200  

32. The perimeter of a square is 24 centimeters. What is the area of that square?

(A) 36 square cm  
(B) 48 square cm  
(C) 96 square cm  
(D) 576 square cm
33.  

A geometry solid is viewed from the side and from the top. Those views are shown above. What could the solid be?

(A) Cone  
(B) Cylinder  
(C) Sphere  
(D) Cube  

34. \( \frac{1}{3} = \)

(A) \(3 \div 5\)  
(B) \(3 - \frac{1}{2}\)  
(C) \(3 \times \frac{1}{5}\)  
(D) \(3 + \frac{1}{5}\)  

35. ESTIMATE.

36. A taxi driver estimates that she drives about 200 miles a day. If she drives every day of the week, about how many miles does she drive in one week?

(A) 1,000 miles  
(B) 2,000 miles  
(C) 3,000 miles  
(D) 10,000 miles
37. Which of the patterns below can be folded along the dotted lines to form an open box in the shape of a cube with a bottom but no top?

(A) II only  
(B) I and II only  
(C) I and III only  
(D) I, II, and III

38. Which one of the following expressions represents how many inches this plant grew from Monday to Saturday?

(A) \( \frac{1}{4} + \frac{5}{8} \)  
(B) \( \frac{5}{8} \)  
(C) \( \frac{5}{8} - \frac{1}{4} \)  
(D) \( \frac{1}{4} - \frac{5}{8} \)

39. \( 4 \times \square = \square \) and \( \square \times 3 = \square \)

The same number must go in each box above. What number would make both sentences true?

(A) 0  
(B) 1  
(C) 3  
(D) 4

40. A pile of cubes 1 inch by 1 inch by 1 inch are glued together to make the block pictured above. How many of the original small cubes are completely hidden inside the big block?

(A) 8  
(B) 9  
(C) 16  
(D) 27
41. ESTIMATE.

ABOUT HOW MANY PENCILS CAN I BUY WITH ONE DOLLAR?

(A) Less than 5  (D) Between 16 and 20
(B) Between 5 and 10  (E) More than 20
(C) Between 11 and 15

42. It took 3 games for a basketball player to score a total of 51 points. If the player keeps this scoring average, how many total points will the player have scored by the end of the seventh game?

(A) 17  (D) 153
(B) 51  (E) 170
(C) 119  (F) 357

43.

A blade slices completely through the wooden cube shown above. Which figure CANNOT be a surface resulting from the slice?

(A)  

(C) 

(B)  

(D) All the figures could be the sliced surfaces.
44. 

If angle a measures 85° and angle b measures 52°, what does angle c measure?

(A) 33°  
(B) 38°  
(C) 137°  
(D) Not enough information given

45.  

This is a diagram of a rectangular solid model made of wooden cubes with 1-centimeter edges. What are the dimensions of the solid in centimeters?

(A) 30 by 20 by 24  
(B) 7 by 5 by 6  
(C) 6 by 4 by 5  
(D) 5 by 3 by 5

46. Which of the following sets CANNOT be measures in degrees of the interior angles of a triangle?

(A) 60, 60, 60  
(B) 90, 45, 45  
(C) 90, 80, 10  
(D) 100, 50, 40  
(E) 150, 15, 15

47. Which of the following is closest to the height of the door to your classroom?

(A) 1 foot  
(B) 7 feet  
(C) 12 feet  
(D) 36 feet

48.  

Each of the three blocks in the figure above weighs the same. The weight of each block is closest to how many units?

(A) 3  
(B) 6  
(C) 9  
(D) 20
49. Which of the drawings below shows PERPENDICULAR LINES.

(A) \[ \parallel \]
(B) \[ \perp \]
(C) \[ \times \]
(D) \[ \angle \]

50. ESTIMATE.

(A) $6       (B) $7       (C) $12       (D) $15       (E) $25

Questions 51-53 refer to the following figure.

51. Which of the following is a diameter of the circle?

(A) \overline{OP}       (B) \overline{QS}       (C) \overline{RM}       (D) \overline{NM}

52. Which of the following is a radius of the circle?

(A) \overline{OP}       (B) \overline{QS}       (C) \overline{RM}       (D) \overline{NT}

53. Which points are the end points of an arc?

(A) O, P       (B) Q, S       (C) N, T       (D) N, M
Questions 54-55. The formula for the relationship between Fahrenheit and Celsius temperatures is \( F = \frac{9}{5} C + 32 \), where \( C \) is degrees Celsius and \( F \) is degree Fahrenheit.

54. For every increase of one degree Celsius, what is the corresponding increase in degrees Fahrenheit?

(A) 1  
(B) 32  
(C) \( 33 \frac{4}{3} \)  
(D) \( \frac{9}{5} \)  
(E) \( \frac{5}{9} \)  

55. What is \( C \) when \( F = 122 \)?

(A) 50  
(B) \( 67 \frac{7}{9} \)  
(C) \( 85 \frac{5}{9} \)  
(D) 162  
(E) \( 251 \frac{1}{3} \)  

56. ESTIMATE.

![Estimate Question]

(A) $6  
(B) $9  
(C) $50  
(D) $60  
(E) $90

57. A cooking instructor estimates that he uses 6 dozen eggs each month. At that rate about how many eggs does he use in one year?

(A) 70  
(B) 800  
(C) 1,200  
(D) 2,500  
(E) $90
58. Karen used her hand calculator to divide 9 by 4. She got 2.25 for an answer. This number is between which of the following pairs of numbers?

(A) 1 and 2  
(B) 2 and 2 \(\frac{1}{2}\)  
(C) \(2 \frac{1}{2}\) and 3  
(D) 3 and 3 \(\frac{1}{2}\)

59. Which two of the following may be concluded from this diagram?

I. All B's are A's
II. All A's are C's
III. Some B's are A's
IV. No B's are C's

(A) I and III only  
(B) I and IV only  
(C) II and III only  
(D) II and IV only

60. According to the chart above, what percent of all the votes went to Michael Jackson?

(A) 20\%  
(B) 40\%  
(C) 50\%  
(D) 66 \(\frac{2}{3}\)\% 

61. The area of square ABCD is 100 square centimeters. Which is true of the length of diagonal AC?

(A) It is equal to 10 centimeters.  
(B) It is greater than 10 centimeters.  
(C) It is less than 10 centimeters.  
(D) It cannot be determined from the information given.
62. The jar shown above contains 2 black and 3 white marbles. Al picks one marble without looking. What is the probability that he picks a black marble?

(A) \(\frac{1}{5}\)  \hspace{1cm}  (C) \(\frac{2}{3}\)

(B) \(\frac{2}{5}\)  \hspace{1cm}  (D) 5

63. One gram is how many milligrams?

(A) 10  \hspace{1cm}  (B) 100  \hspace{1cm}  (C) 1000

64. The teacher put a dot on the chalkboard and marked it P. Then she asked three children to measure 2 centimeters from P and put a dot. The picture shows where the children put their dots.

- Matt

- Ann

- P

- Raúl

If 20 children measured and each put a different dot, the picture would look most like a

(A) circle  \hspace{1cm}  (C) square

(B) rectangle  \hspace{1cm}  (D) triangle

65. The scale drawing above shows the floor plan of a living room. A sofa is to be placed along the west wall between the table and the stereo. What is the maximum length the sofa can be?

(A) 5 feet  \hspace{1cm}  (C) 7 \frac{1}{2} feet

(B) 6 \frac{1}{2} feet  \hspace{1cm}  (D) 8 feet
66. Which is the smallest bill that is enough to pay for 4 baseballs?
   (A) Five-dollar bill
   (B) Ten-dollar bill
   (C) Twenty-dollar bill
   (D) Fifty-dollar bill

Questions 67-68 refer to the following.

\[
\begin{array}{cccc}
5 & 3 & 9 & 2 \\
\end{array}
\]

John won 8 of the games he played, Ted won 4, Jim won 16, and Rocky won 3.

67. Which of the players had the best record?
   (A) John
   (B) Ted
   (C) Jim
   (D) Rocky

68. Which of the players had the worst record?
   (A) John
   (B) Ted
   (C) Jim
   (D) Rocky

69. It is approximately 90,000,000 miles from the Earth to the Sun. Which is the correct scientific notation for this distance?
   (A) \(9 \times 10^7\)
   (B) \(9 \times 10^8\)
   (C) \(90 \times 10^5\)
   (D) \(90\ \text{million} \times 10^7\)

70. Which of the following is closest to the height of the door to your classroom?
   (A) 1 meter
   (B) 2 meters
   (C) 4 meters
   (D) 7 meters

71. Change .35 to a percent.
   (A) 0.35%
   (B) 3.5%
   (C) 35%
   (D) 350%
ABOUT THIS TEST

Please answer the following questions after you have completed this test. Record your answers in the box at the end of the answer sheet.

A. How much of the material covered on this test has been taught in your classes?
B. How difficult was this test for you?
C. How well do you think you did on this test?
D. How hard did you work to do well on this test?

WHEN YOU HAVE FINISHED

Please check to make sure you have marked one answer for each question. When you have checked your answers, place your Answer Sheet inside the front cover of the test booklet. All of the booklets will be collected at the same time after everyone is finished. Please sit quietly while others are completing their work.
### Longitudinal Study of American Youth

**Math Test (Form Z)**

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### About This Test

A. How much of the material on this test has been taught in your classes?

- Almost
- All
- Most
- Some
- Little

B. How difficult was this test?

- Very Difficult
- Difficult
- Easy
- Very Easy

C. How well do you think you did?

- Very Well
- Well
- Poorly
- Very Poorly

D. How hard did you work?

- Very Hard
- Pretty Hard
- Not Very Hard
- Not Hard
- At All

### For LSAY Use Only

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