

# 1996 SIXTH GRADE MATHEMATICS COMPETITION

## AUSTIN PEAY STATE UNIVERSITY CLARKSVILLE, TENNESSEE

Sixth Grade Test  
1996  
Scoring Formula  $4R - W + 40$

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### DIRECTIONS:

This is a test of your competence in middle school mathematics. For each problem there are five possible answers listed. You are to work the problems, determine the correct answer, and indicate your choice on the separate answer sheet provided.

### SAMPLE:

1. If  $x + 1 = 2$ , then  $x$  equals
- a. 0
  - b. 2
  - c. -1
  - d. 1
  - e. none of the above

	A	B	C	D	E
1	①	②	③	●	⑤
	A	B	C	D	E
2	①	②	③	④	⑤
	A	B	C	D	E
3	①	②	③	④	⑤

The correct answer is 1 which is d; so you should answer this problem by darkening the space on the answer sheet corresponding with this choice.

If you change your mind about your answer, be sure to erase completely. Avoid wild guessing, as wrong answers count against you. Do not mark more than one answer for any problem. Make no stray marks of any kind on your answer sheet.

When told to do so, open your test booklet and begin. When you have finished one page, go on to the next. The working time for the entire test is 60 minutes.



1.  $\sqrt{4} \cdot \sqrt{4} \cdot \sqrt{4} \cdot \sqrt{4} =$

- (a) 4
- (b) 8
- (c) 16
- (d) 32
- (e) 64

2. Points A, B, C, and D lie on a line, as shown in the diagram. If  $AC = 20$ ,  $BC = 15$ , and  $AD = 30$ , then  $CD =$



**NOTE:** The diagram is not necessarily drawn to scale.

- (a) 5
- (b) 10
- (c) 15
- (d) 20
- (e) 25

3.  $\frac{1 - \frac{1}{3}}{1 - \frac{1}{2}} =$

- (a)  $\frac{1}{3}$
- (b)  $\frac{2}{3}$
- (c)  $\frac{3}{4}$
- (d)  $\frac{5}{6}$
- (e)  $\frac{4}{3}$

4. If 12 perfectly round marbles, each 1 cm in diameter, were arranged in a straight row, touching each other, what would be the distance between the centers of the first and last marbles?

- (a) 10 cm
- (b) 11 cm
- (c) 12 cm
- (d) 13 cm
- (e) 14 cm

5. Give the next number in the sequence: 3, 6, 11, 18, ...

- (a) 21
- (b) 23
- (c) 27
- (d) 29
- (e) 30

6. A 12-oz cup is  $\frac{2}{3}$  full and an 8-oz cup is  $\frac{3}{4}$  full. The liquid from both of these cups is poured into a 20-oz cup. The 20-oz cup is

- (a)  $\frac{2}{3}$  full.
- (b)  $\frac{5}{7}$  full.
- (c)  $\frac{12}{17}$  full.
- (d)  $\frac{7}{10}$  full.
- (e) completely full.

7. If  $a + b = 8$ , then  $3a + 3b =$

- (a) 14.
- (b) 17.
- (c) 24.
- (d) 27.
- (e) 72.

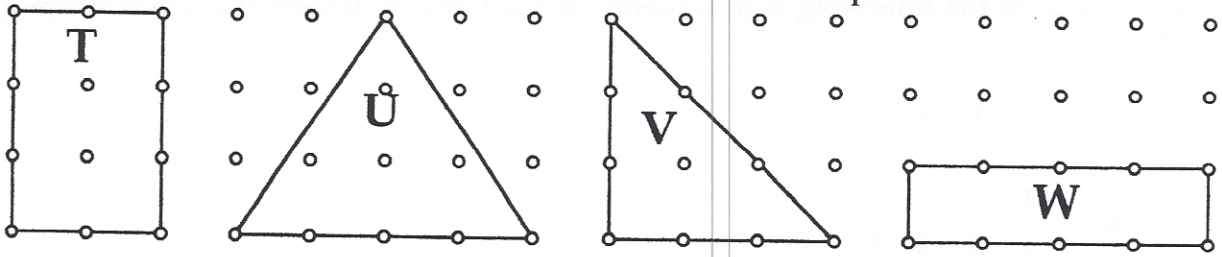
8. On a scale drawing, a segment 5 cm long represents a distance of 40 meters. What distance does a segment 6.75 cm long represent?

- (a) 51 meters
- (b) 53 meters
- (c) 54 meters
- (d) 57 meters
- (e) 60 meters

9.  $43.416 \div 0.06 =$

- (a) 7.236
- (b) 72.36
- (c) 723.6
- (d) 7236
- (e) 72,360

10. Which two figures have the same area but different perimeters?



- (a) T and U
- (b) T and V
- (c) T and W
- (d) U and V
- (e) V and W

11.  $4.35 \times 7.92 =$

- (a) 344,520
- (b) 3445.20
- (c) 344.520
- (d) 34.452
- (e) 3.4452

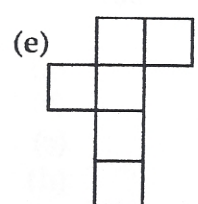
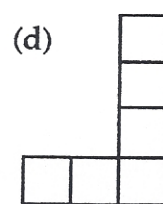
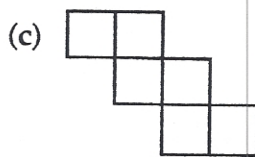
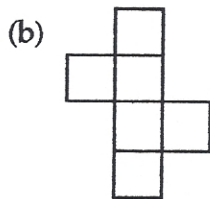
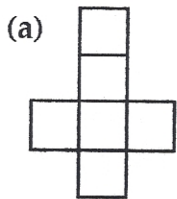
12. A tennis player burns 800 calories for each hour she is playing. How many calories does she burn if she plays 1 hour and 15 minutes?

- (a) 600
- (b) 800
- (c) 900
- (d) 1000
- (e) 1600

13. When a number is divided by 3, the quotient is 5 and the remainder is 2. The number is

- (a) 6
- (b) 10
- (c) 11
- (d) 13
- (e) 17

14. Which of the following would not fold up to make a cube?



15. Which of the following is a sequence of fractions in descending order (from greatest to least)?

- (a)  $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{3}{8}$
- (b)  $\frac{3}{8}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$
- (c)  $\frac{1}{3}, \frac{1}{4}, \frac{3}{8}, \frac{1}{5}$
- (d)  $\frac{1}{5}, \frac{1}{4}, \frac{1}{3}, \frac{3}{8}$
- (e)  $\frac{3}{8}, \frac{1}{5}, \frac{1}{4}, \frac{1}{3}$

16.  $4683 \times 385 =$

- (a) 1,802,951
- (b) 1,802,952
- (c) 1,802,953
- (d) 1,802,954
- (e) 1,802,955

17. If January 1 falls on a Sunday, on what day will January 31 fall?

- (a) Sunday
- (b) Monday
- (c) Tuesday
- (d) Wednesday
- (e) Thursday

18. The perimeter of a square is 32 inches. What is the area of the square?

- (a) 64 square inches
- (b) 64 inches
- (c) 32 square inches
- (d) 32 inches
- (e) 16 square inches

19. What is the sum of the least prime number and the greatest prime number less than 50?

- (a) 44
- (b) 46
- (c) 48
- (d) 49
- (e) 50

20. Which of the following is the best approximation for  $.403 \times 1.96$ ?
- (a) .8
  - (b) 1.2
  - (c) 4.8
  - (d) 6
  - (e) 8
21. I have twice as many dimes as nickels. The value of my nickels is \$2.10. What is the value of my dimes?
- (a) \$4.20
  - (b) \$6.40
  - (c) \$7.20
  - (d) \$8.20
  - (e) \$8.40
22. Jane has two pennies, two nickels and two dimes. How many different amounts of money can Jane make using exactly two coins?
- (a) 4
  - (b) 5
  - (c) 6
  - (d) 7
  - (e) 8
23. For  $\triangle ABC$ ,  $m \angle A = 55^\circ$  and  $m \angle B = 67^\circ$ , then  $m \angle C =$
- (a)  $55^\circ$ .
  - (b)  $56^\circ$ .
  - (c)  $57^\circ$ .
  - (d)  $58^\circ$ .
  - (e)  $63^\circ$ .
24. Which of the following could not be the lengths of the sides of a triangle?
- (a) 5 inches, 6 inches, and 7 inches
  - (b) 5 inches, 8 inches, and 9 inches
  - (c) 5 inches, 10 inches, and 10 inches
  - (d) 5 inches, 10 inches, and 14 inches
  - (e) 5 inches, 9 inches, and 14 inches

25.  $15 - 14 + 13 - 12 + 11 - 10 + 9 - 8 + 7 - 6 + 5 - 4 + 3 - 2 + 1 =$

- (a) 20
- (b) 15
- (c) 10
- (d) 9
- (e) 8

26. Jane bought two bottles of soda and a candy bar for \$1.40. Later she bought one bottle of soda and a candy bar for 90¢. What was the cost of one candy bar?

- (a) 35¢
- (b) 40¢
- (c) 45¢
- (d) 50¢
- (e) 55¢

27. A family dined at a restaurant. The bill for the meal was for \$48.00. They left a tip of 15% of the bill. What was the amount of the tip?

- (a) \$4.80
- (b) \$5.00
- (c) \$6.00
- (d) \$6.80
- (e) \$7.20

28. Which number in the set {9, 10, 12, 15, 16} has the greatest number of divisors?

- (a) 9
- (b) 10
- (c) 12
- (d) 15
- (e) 16

29. A family plans to take a trip to Fargo. Fargo is 390 miles from their home. If they travel at 60 miles per hour, what time will they need to leave home in order to arrive in Fargo at 11:00?

- (a) 6:00
- (b) 5:30
- (c) 5:15
- (d) 5:00
- (e) 4:30



30. Find the median of these numbers:

84 91 72 68 86 86

- (a) 72
- (b) 84
- (c) 85
- (d) 86
- (e) 91

31. A bag contains 3 marbles that are identical except for color. One marble is red; the other two are blue. Without looking, a person takes two marbles from the bag at the same time. What is the probability that both of the marbles drawn were blue?

- (a)  $\frac{1}{3}$
- (b)  $\frac{1}{2}$
- (c)  $\frac{2}{3}$
- (d)  $\frac{3}{4}$
- (e)  $\frac{5}{6}$

32. Give the next number in the sequence: 2, 3, 5, 8, 13, 21, ...

- (a) 27
- (b) 28
- (c) 29
- (d) 34
- (e) 38

33. Find the difference between the greatest and the second greatest numbers shown below:

$\frac{1}{4}$     $\frac{2}{9}$     $\frac{1}{3}$     $\frac{1}{5}$

- (a)  $\frac{2}{16}$
- (b)  $\frac{1}{15}$
- (c)  $\frac{1}{10}$
- (d)  $\frac{1}{12}$
- (e)  $\frac{1}{30}$

34. It is impossible for a triangle to be both

- (a) isosceles and acute.
- (b) right and scalene.
- (c) right and isosceles.
- (d) obtuse and scalene.
- (e) right and equilateral.

35. Suppose someone who is taking this test does not know the answer to one of the questions, but that person does know that one of the choices is not correct. If that person decides to guess, what is the probability that he or she will answer the question correctly?

- (a)  $\frac{1}{2}$
- (b)  $\frac{1}{4}$
- (c)  $\frac{1}{5}$
- (d)  $\frac{1}{6}$
- (e)  $\frac{1}{7}$

36.  $10101_{\text{two}} =$

- (a) 42
- (b) 21
- (c) 13
- (d) 7
- (e) 3

37. Jack had a bag of 128 apples. He sold 25% of them to Jill. Next he sold 25% of those remaining to June. Of those apples still in his bag, he gave the shiniest one to his teacher. How many apples did Jack have then?

- (a) 7
- (b) 63
- (c) 65
- (d) 71
- (e) 111

38. When placing each of the digits, 2, 4, 5, 6, and 9 in exactly one of the boxes of this subtraction problem, what is the smallest difference possible?

$$\begin{array}{r} \square \square \square \\ - \square \square \\ \hline \end{array}$$

- (a) 58
- (b) 123
- (c) 149
- (d) 171
- (e) 176

39. A rectangle whose sides have lengths which are integers has a perimeter of 36 inches. Which of the following could not be the area of the rectangle?

- (a) 17 square inches
- (b) 60 square inches
- (c) 65 square inches
- (d) 72 square inches
- (e) 80 square inches

40. When Lynn got dressed, he put some money in his pocket. At breakfast, he gave his sister the 75¢ he owed her. He spent half of the remaining money at the bookstore at school. On the way home he spent \$1.35 for a snack. When he got home and emptied his pocket, he had 85¢ left. How much money did he start the day with?

- (a) \$2.95
- (b) \$3.70
- (c) \$4.30
- (d) \$5.15
- (e) \$5.90

