1995 SIXTH GRADE MATHEMATICS COMPETITION

AUSTIN PEAY STATE UNIVERSITY
CLARKSVILLE, TENNESSEE

UNIVERSITY OF TENNESSEE AT MARTIN
MARTIN, TENNESSEE

Sixth Grade Test
1995
Scoring Formula 4R – W + 40

Prepared by:
Ernest Woodward
Mary Lou Witherspoon
Edited by:
Thomas Ray Hamel

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

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.

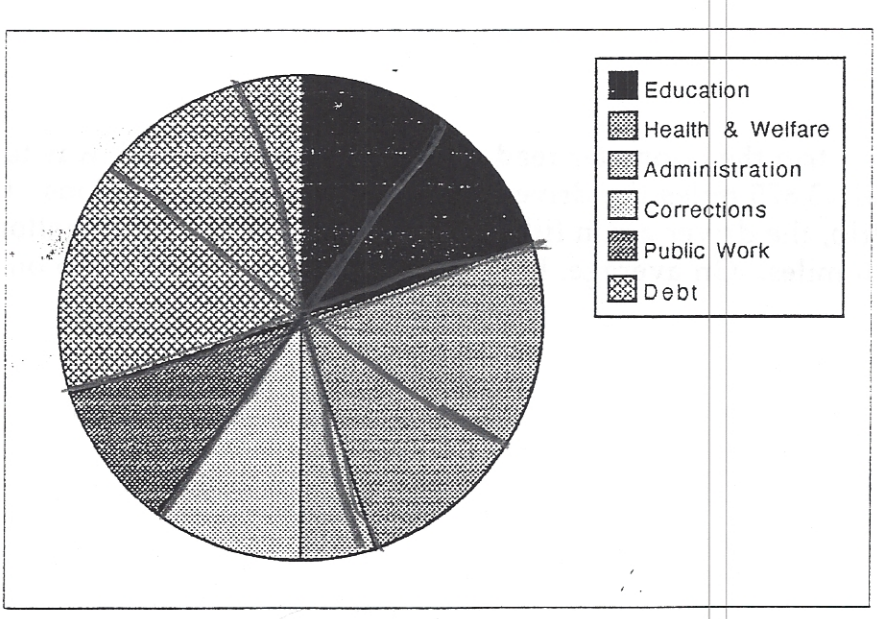
If you change your mind about your answer, be sure to erase completely. Avoid wild guessing, as wrong answers count against you. Do not mark more than one answer for any problem. Make no stray marks of any kind on your answer sheet.

When told to do so, open our 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. Which of the following is the best estimate for $\frac{597}{803}$?

a. 0
b. $\frac{1}{4}$
c. $\frac{1}{2}$
d. $\frac{3}{4}$
e. $1\frac{1}{4}$

2. According to the circle graph below, about what percent of tax money is spent on education?



a. 10%
b. 20%
c. 30%
d. 50%
e. 70%

3. $\sqrt{25} - \sqrt{9} =$

a. 2
b. $\sqrt{5} - \sqrt{3}$
c. $\sqrt{16}$
d. 10
e. 4

4. If there are exactly four Sundays in August, then August 31 could not fall on a

a. Tuesday
b. Wednesday
c. Thursday
d. Friday
e. Saturday

5. $\dfrac{462 + 463 + 464 + 465 + 466 + 467 + 468 + 469 + 470 + 471}{5}$

a. 929
b. 931
c. 933
d. 935
e. 937

6. At the beginning of a trip the odometer read 43,500 miles and the tank was full. When the odometer read 43,875 miles the driver filled the tank with 14 gallons of gas. At the end of the trip, the driver again filled the tank, this time with 16 gallons. The odomter read 44,310 miles. On average, how many miles could the car go on one gallon of gas?

a. 25 miles
b. 27 miles
c. 28 miles
d. 29 miles
e. 31 miles

7. A number is selected at random from the set { 1, 2, 3, 4, 5, 6, 7, 8, 9}. What is the probability that the number selected is prime?

a. $\frac{1}{9}$
b. $\frac{2}{9}$
c. $\frac{3}{9}$
d. $\frac{4}{9}$
e. $\frac{5}{9}$

8. $\frac{3 \times 5}{9 \times 11} \times \frac{7 \times 9 \times 11}{3 \times 5 \times 7} =$

a. 1
b. 0
c. 49
d. $\frac{1}{49}$
e. 50

9. How many whole numbers between 100 and 200 contain the digit 2?

a. 9
b. 12
c. 14
d. 18
e. 19

10. If $a > 0$, $b < 0$, and $c < 0$, which of the following must be negative?

a. $a + b + c$
b. $a(b + c)$
c. $a - b + c$
d. abc
e. $-(b + c)$

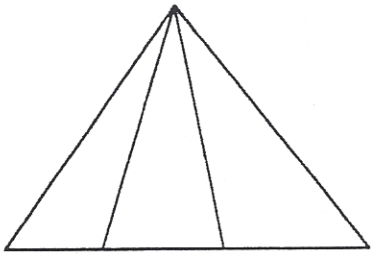
11. $5\frac{1}{7} \cdot \frac{3}{11} + 5\frac{6}{7} \cdot \frac{3}{11} =$

a. 3
b. 4
c. 7
d. 8
e. 9

12. What is the measure of the angle formed by the hour and minute hand of a clock at 4:00?

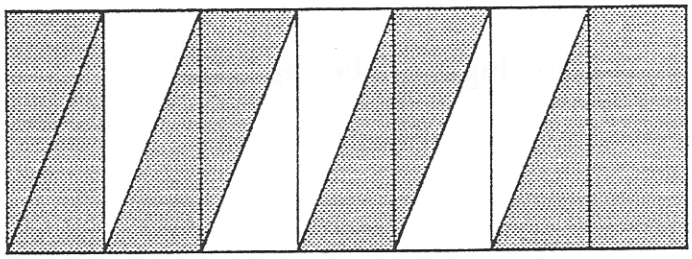
a. 90°
b. 100°
c. 110°
d. 120°
e. 130°

13. How many triangles are pictured below?



a. 3
b. 4
c. 5
d. 6
e. 7

14. What fractional part of the large figure is shaded?



a. $\frac{9}{14}$
b. $\frac{2}{3}$
c. $\frac{3}{7}$
d. $\frac{5}{7}$
e. $4\frac{1}{2}$

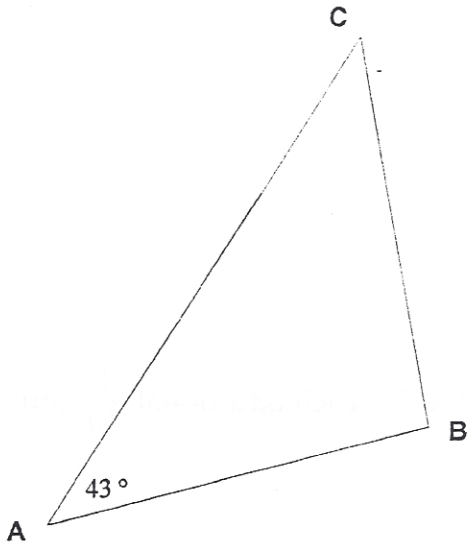
15. If $2x + 3y = 7$, then $4x + 6y + 10 =$

a. 24
b. 25
c. 26
d. 27
e. 28

16. If $x \div 5 = y$, then $x \div 10 =$

a. $10y$
b. $2y$
c. $\frac{1}{2}y$
d. $\frac{1}{10}y$
e. $\frac{1}{50}y$

17. In the figure below $\triangle ABC$ is an isosceles triangle with $\overline{AB} \cong \overline{BC}$ and the measure of $\angle A$ is 43 °. What is the measure of $\angle B$?



a. 43°
b. 47°
c. 86°
d. 90°
e. 94°

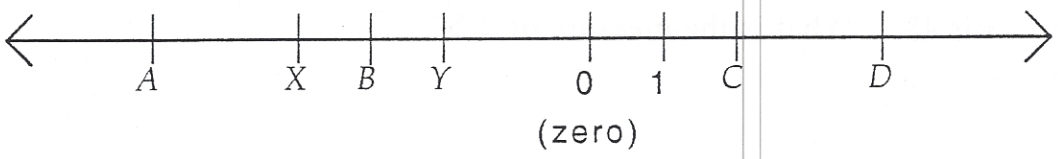
18. Which of the following could not be lengths of sides of a triangle?

a. 4, 3, and 3
b. 4, 3, and 2
c. 4, 4, and 2
d. 4, 4, and 1
e. 4, 2, and 1

19. Which of the following could not be the measures of the three angles of a triangle?

a. 50°, 40°, 90°
b. 30°, 60°, 100°
c. 10°, 20°, 150°
d. 60°, 60°, 60°
e. 28°, 61°, 91°

20. If the numbers represented by points X and Y were added, which point would best represent their sum?



a. A
b. B
c. C
d. D
e. 0 (zero)

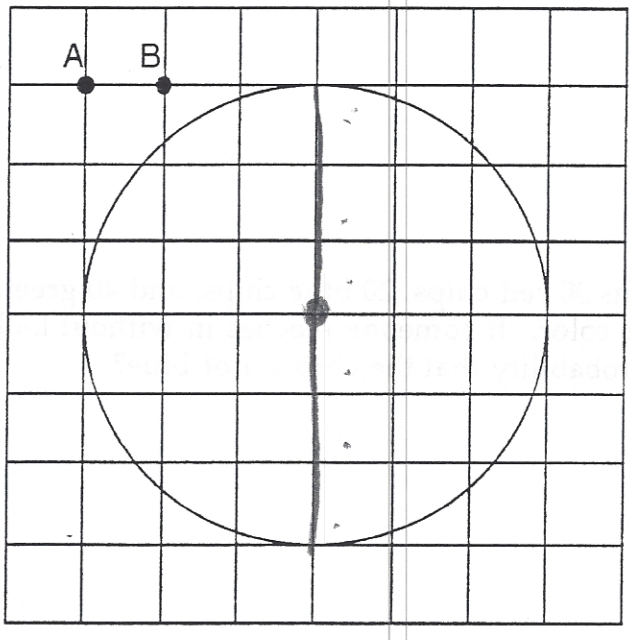
21. A taxi ride costs 90¢ for the first $\frac{1}{10}$ mile and 10¢ for each additional $\frac{1}{10}$ mile. What is the cost of a 2-mile trip?

a. $3.10
b. $3.00
c. $2.90
d. $2.80
e. $2.00

22. There are one thousand marbles. Four of the marbles are yellow. What percent of the marbles are yellow?

a. 250%
b. 4%
c. 0.4%
d. 0.250%
e. 0.04%

23. The distance between A and B is 1 cm on the grid below. What is the best approximation of the circumference of the circle shown here?



a. 10 cm
b. 12 cm
c. 19 cm
d. 20 cm
e. 24 cm

24. Which of the following words has a 3:2 ratio of consonants to vowels?

a. ratio
b. difference
c. see
d. ant
e. banana

25. In the first nine games of basketball season Pat scored a total of 144 points. At the end of the tenth game Pat's average score for the season was 17 points per game. Which sentence must be true?

a. Pat scored 17 points in the tenth game.
b. Pat scored 18 points in the tenth game.
c. Pat scored 19 points in the tenth game.
d. Pat scored 26 points in the tenth game.
e. It is impossible to calculate how many points Pat scored in the tenth game from the information given.

26. There were 87 people sitting in the movie theater. Three-fifths of the seats were occupied. How many more people could be seated in the theater?

a. 24
b. 29
c. 58
d. 145
e. 435

27. A bowl contains 30 red chips, 20 blue chips, and 40 green chips. The chips are identical except for color. If someone reaches in without looking and draws one chip, what is the probability that the chip is not blue?

a. $\frac{2}{9}$
b. $\frac{20}{70}$
c. $\frac{70}{100}$
d. $\frac{30}{40}$
e. $\frac{70}{90}$

28. A student entered [12.48357] [÷] [4.559845] [=] into a calculator. The calculator displayed the digits [27377181] in the answer but left out the decimal point. What is the correct quotient?

a. 2.7377181
b. 27.377181
c. 273.77181
d. 2737.7181
e. 2737718.1

29. If $\frac{79.5}{835.91} = \frac{x}{83591}$, then x =

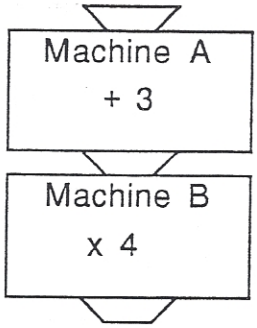
a. 79,500
b. 0.795
c. 0.0795
d. 7950
e. 795,000

30. In the product below B represents a digit. What is the value of B that would make the product correct?

$$\begin{array}{r} B2 \\ \times\ 7B \\ \hline 6396 \end{array}$$

a. 3
b. 6
c. 7
d. 8
e. 9

31. Pictured below are two "function machines" that are connected. The number that comes out of Machine A goes into Machine B and then Machine B outputs a number. When 2 goes into Machine A, 20 comes out of Machine B. When 5 goes into Machine A, 32 comes out of Machine B.



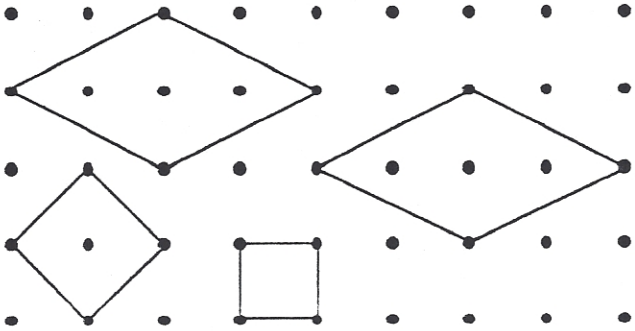
What number must be put into Machine A to make 100 come out of Machine B?

a. 412
b. 406
c. 103
d. 97
e. 22

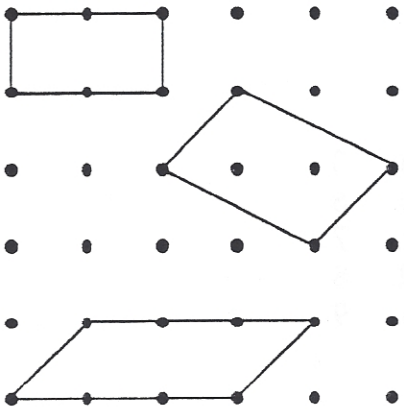
32. A drawer contains 12 identical white socks and 12 identical black socks. What is the fewest number of socks that must be drawn to guarantee two matching pairs?

a. 4
b. 5
c. 6
d. 7
e. 8

33. Each figure shown here is a rhombus.

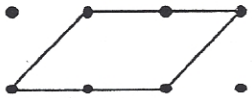


Each figure shown here is NOT a rhombus.

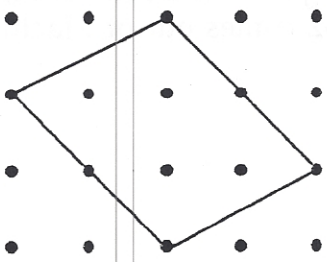


Which of the figures shown below is a rhombus?

a.

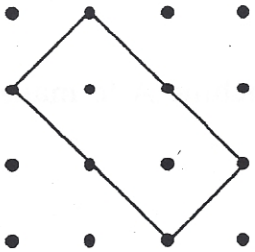


b.

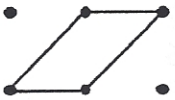


c.

d.



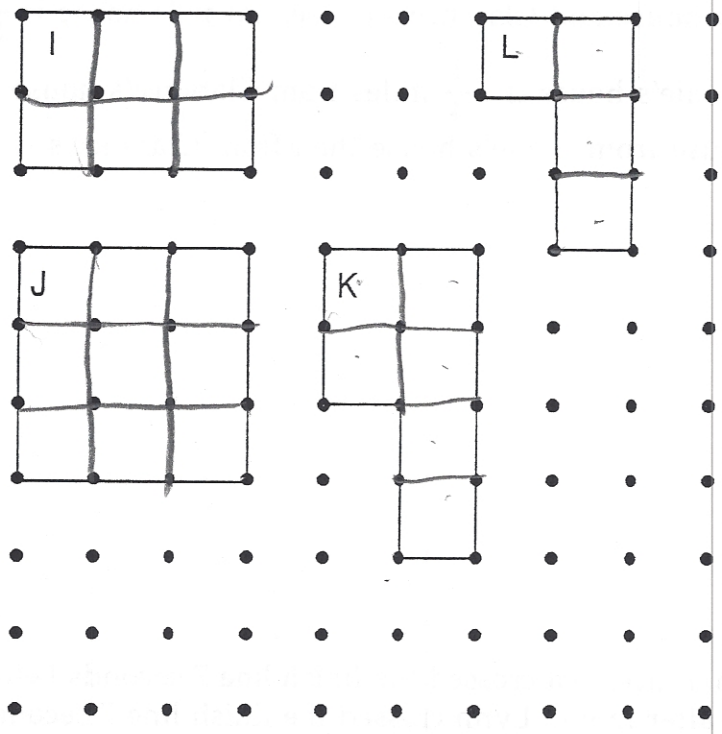
e.



34. On a map $\frac{1}{2}$ inch represents 10 miles. If on the map, the distance between two towns is $2\frac{1}{2}$ inches, what is the actual distance between the towns?

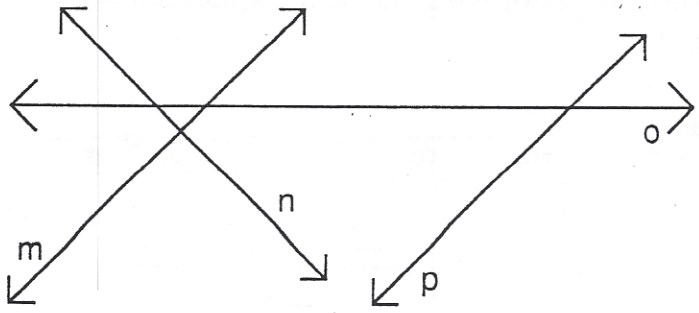
a. 20 miles
b. 25 miles
c. 40 miles
d. 50 miles
e. 55 miles

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



a. L and K
b. J and K
c. I and L
d. I and K
e. I and J

36. In the drawing below, which two lines are parallel?



a. m and n
b. m and p
c. m and o
d. n and p
e. p and o

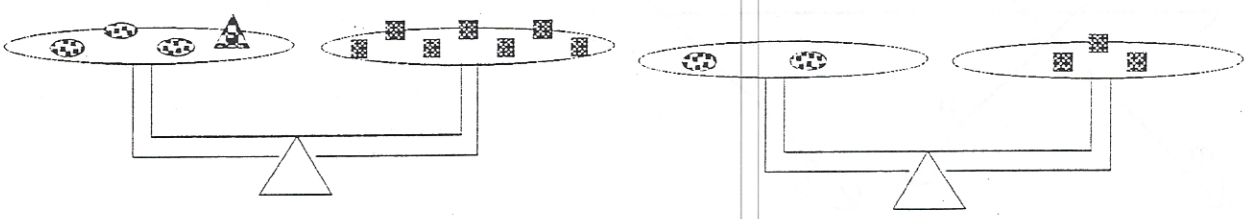
37. Arnie's house, Belinda's house, and Clarence's house are on the same road. Belinda's house is between Arnie's house and Clarence's house. Arnie's house is $\frac{7}{8}$ of a mile from Belinda's house. Arnie's house is $1\frac{1}{4}$ miles from Clarence's house. How much farther is Belinda's house from Arnie's house than from Clarence's house?

a. $\frac{1}{4}$ mile
b. $\frac{3}{8}$ mile
c. $\frac{1}{2}$ mile
d. 1 mile
e. $2\frac{1}{8}$ miles

38. Pat, Lynn, Robbie, and Sal ran a race. Sal crossed the finish line 7 seconds before Robbie, but Sal finished 3 seconds after Lynn. Lynn crossed the finish line 7 seconds before Pat. Which statement is true?

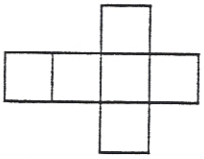
a. Lynn did not win the race.
b. Pat finished last.
c. Sal finished 4 seconds ahead of Pat.
d. Lynn finished 17 seconds ahead of Robbie.
e. Sal finished 10 seconds ahead of Pat.

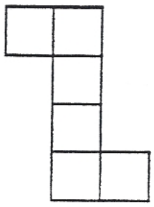
39. On the balance scales there are three types of weights. If the scales shown balance, what weighs the same as ▲ ?

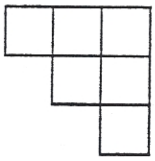


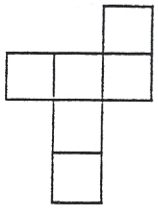
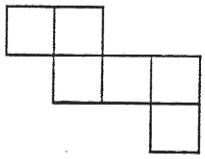
a. ▩ ⬭
b. ▩ ▩
c. ⬭ ⬭
d. ▩ ⬭ ⬭
e. ▩ ▩ ⬭

40. Which of the following "nets" could NOT be folded along the lines to form a cube?

a. 

b. 

c. 

d. 

e.