5TH GRADE

RANDOLPH SCHOOL MATHEMATICS TOURNAMENT APRIL 28, 2007

There are 30 multiple-choice questions and three tiebreakers on this test. Mark your answers on the scantron sheet. If none of the answers is correct, choose E. No aids such as calculators, notes, books, etc., may be used in completing the test. You may write on the test and use the scratch paper attached to the back of this test.

Your score on this examination will be computed as *FOUR TIMES THE NUMBER CORRECT MINUS THE NUMBER INCORRECT*. Blanks are not counted as correct or incorrect in computing the score.

The tiebreakers count one-tenth of one point. Work on the tiebreakers only after you have completed all the multiple-choice questions. Write the answers to the tiebreakers in the designated spaces on the scantron sheet.

The time limit on the test is *one hour*. If you finish before time is called, you may leave the room but must also leave the testing area.

5th Grade Test

Randolph School Mathematics Tournament

April 28, 2007

1. Evaluate: $\frac{1}{2}\cdot\frac{2}{3}\cdot\frac{3}{4}\cdot\frac{4}{5}$

   A. 0.2 B. 0.25 C. 0.75 D. 1

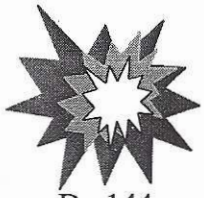
2. Solve for x: $2000-700+20-7=7000-200+70-2-x$

   A. 2725 B. 7525 C. 5050 D. 5555

3. What is the sum of the reciprocals of $\frac{2}{5}$ and $\frac{5}{2}$?

   A. 1 B. 1.25 C. 2.9 D. 3.2

4. A signal flare is fired from a submarine that is 233 feet below sea level and rises vertically to a height of 347 feet above sea level before exploding. How many feet did the flare travel before exploding?



   A. 680 B. 580 C. 570 D. 144

5. One angle of a triangle is 102 degrees. What is the average number of degrees in the remaining two angles?

   A. 39 B. 44 C. 45 D. 78

6. Write $0.9\overline{54}$ as a fraction in lowest terms.

   A. $\frac{105}{111}$ B. $\frac{103}{110}$ C. $\frac{318}{333}$ D. $\frac{21}{22}$

7. The first 16 letters of the alphabet are written on separate pieces of paper and placed in a jar. What is the probability of reaching into the jar and randomly selecting a piece of paper with a consonant written on it?

   A. $\frac{13}{16}$ B. $\frac{11}{16}$ C. $\frac{3}{4}$ D. $\frac{1}{4}$

8. Simplify: $4(y + 5) + 3(2y + 5) - 6y$

   A. $4y + 35$ B. $10y + 35$ C. $10y + 15$ D. $4y + 15$

9. The ratio of the number of girls to the number of boys attending Randolph School is 4 to 3. If there are 840 students enrolled at the school, how many girls attend Randolph?

   A. 120 B. 240 C. 360 D. 480

10. At 9:00 AM two cars leave a rest area on I-65. One travels north and the other south. If both cars are traveling at an average rate of 70 miles per hour and make no stops, at what time will the two cars be 350 miles apart?

   A. 2:00 PM B. 12:00 PM C. 11:30 AM D. 12:30 PM

11. Evaluate: $\sqrt{25-9}+\sqrt{100-36}$

   A. 12 B. 6 C. 3 D. $4\sqrt{5}$

12. The math team bought 240 doughnuts to sell at school during break. If they sold the doughnuts for 40 cents each and collected a total of \$76.80, how many dozens of doughnuts were not sold?

A. 48 B. 24 C. 16 D. 4

13. Solve for z: $\frac{12}{z} = \frac{18}{5}$

A. 0.3 B. 3.3 C. $3.\overline{3}$ D. 3.75

14. Evaluate: $36 \div 2 + 16 - 4 \cdot 5 - 3$

A. -15 B. 11 C. 75 D. 147

15. What is the sum of the first nine prime numbers?

A. 78 B. 92 C. 98 D. 100

16. 90% of 36 is the same as 60% of what number?

A. 32.4 B. 54 C. 64.8 D. 108

17. The sides of a triangle are 10, 6, and 8 inches. What is the area of the triangle in square inches?

A. 48 B. 40 C. 30 D. 24

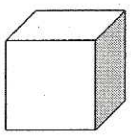
18. Evaluate: $\frac{2^9}{2^3}$

A. 64 B. 32 C. 8 D. 3

19. Dr. Hulsey drives on two stretches of road to get to his destination. The first stretch is 58 miles and the second is 86 miles. If his total travel time is two hours and forty minutes, what is his average driving rate for the trip in miles per hour?

A. 72 B. 60 C. 54 D. 48

20. If the surface area of a cube is 150 square inches, how many cubic inches are in the volume of the cube?



A. 100 B. 125 C. 216 D. 225

21. Solve for x: $\frac{5}{11} - \frac{4}{11} + \frac{3}{11} - \frac{2}{11} + \frac{1}{11} = \frac{x}{33}$

A. 45 B. 11 C. 9 D. 3

22. What is the sum of the positive integers whose squares are between 275 and 375?

A. 35 B. 54 C. 613 D. 974

23. What is the next number in the sequence? 3, 10, 19, 30, 43, ____

A. 50 B. 54 C. 56 D. 58

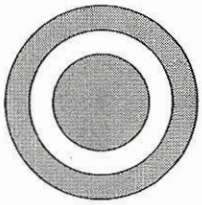
24. If $c\int_a^b d = \frac{abc}{d(b-a)}$, find $5\int_4^9 2$.

A. 36 B. 18 C. $\frac{13}{10}$ D. $\frac{9}{5}$

25. In how many ways can the letters in the word "eight" be arranged?

A. 8 B. 24 C. 64 D. 120

26. The diameters of the three circles in the figure are 4, 6 and 8 centimeters. What is the area in square centimeters of the shaded region?

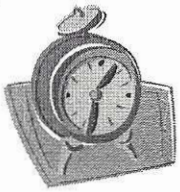


A. 6π B. 11π C. 20π D. 44π

27. On what day of the week will the 120th day of this year occur?

A. Monday B. Tuesday C. Saturday D. Sunday

28. What is the degree measure of the smaller angle formed by the hour and minute hands of a clock (with a circular face) at 8:00 AM?



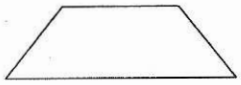
A. 120 B. 60 C. 48 D. 20

29. The average of five numbers is 24. A sixth number is added so that the new average is 27. What was the sixth number?

A. 54 B. 42 C. 28 D. 14

30. What is the height of a trapezoid whose base sum is 24 inches and whose area is 60 square inches?

A. 3 B. 5 C. 10 D. 12



TIE BREAKERS: Your answers must be in simplest form. You do not need to include units of measure in your answers.

1. If $\Omega + \Psi = 22$ and $\Omega - \Psi = 6$, then $5\Omega - 2\Psi =$ ___?

2. Carolyn has a collection of 476 coins consisting of dimes and quarters. The value of the collection is \$92.75. How many quarters are in the collection?

3. If a and b are positive consecutive integers, find $a + b$ when $a < \sqrt{2007} < b$.