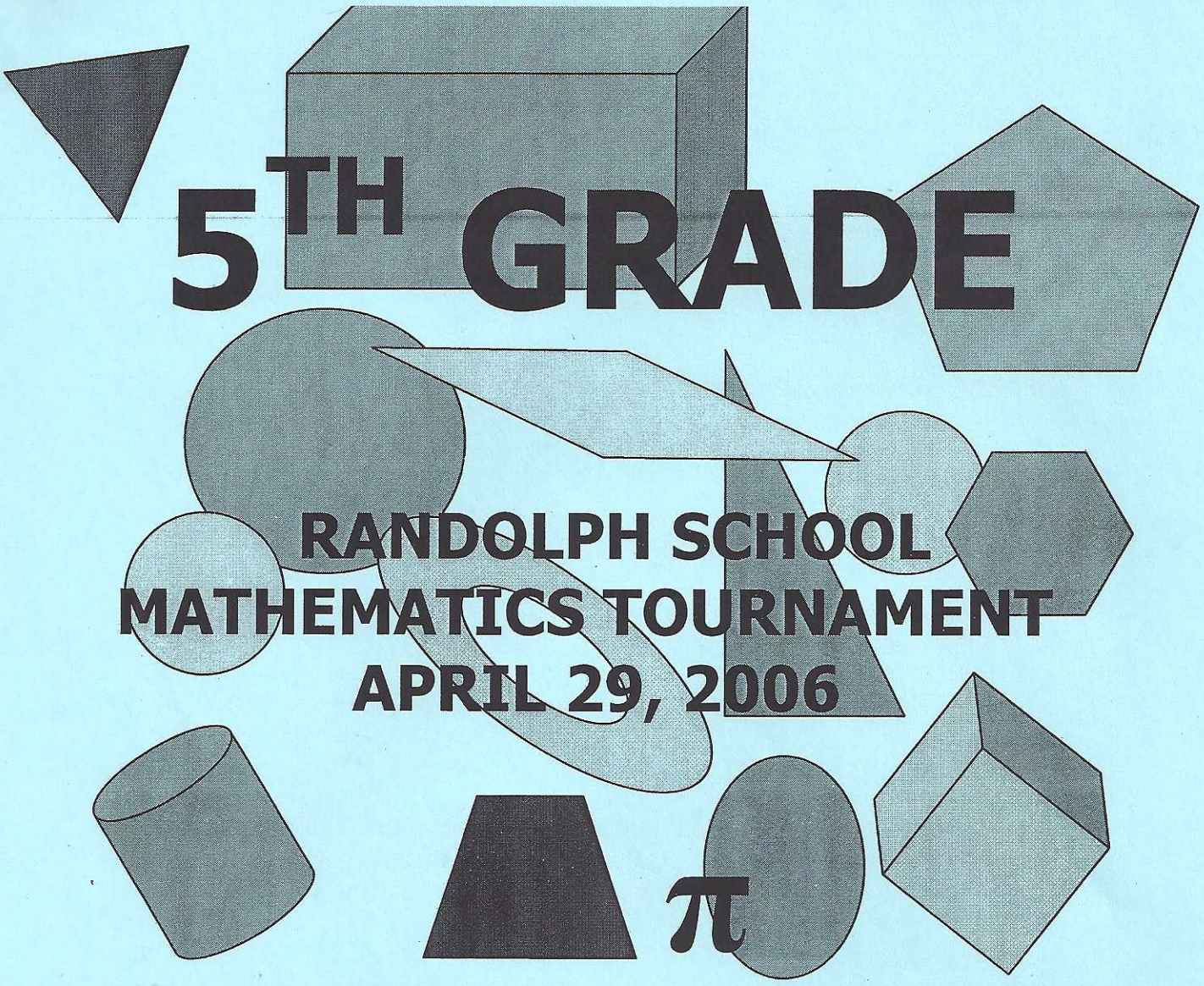


5TH GRADE

RANDOLPH SCHOOL MATHEMATICS TOURNAMENT APRIL 29, 2006

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 scratch paper provided.

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.

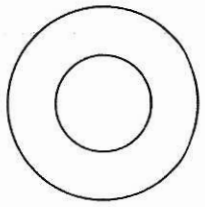
The tiebreakers count one-tenth of one point. Work on the tiebreakers only after you have completed all the multiple-choice questions. Write the answers to the tiebreakers in the designated spaces on the scantron sheet.

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 29, 2006



1. Two concentric circles have diameters of lengths 10 and 18. What is the length of the shortest line segment that could contain one point on each of the circles?
   A. 4 B. 8 C. 12 D. 14

2. Sanket has half as many dimes as quarters. If the value of his quarters is $50.50, what is the value of his dimes?
   A. $25.25 B. $20.20 C. $10.10 D. $5.05

3. Three blue, five red, six yellow, and four green marbles are placed in a jar. A marble is selected at random from the jar. What is the probability that the marble is not yellow?
   A. $\frac{2}{9}$ B. $\frac{1}{3}$ C. $\frac{4}{9}$ D. $\frac{2}{3}$

4. Two angles of a triangle have degree measures of 67 and 105. What is the measure of the remaining angle?
   A. 8 B. 28 C. 78 D. 188

5. Matthew can jog 2.4 miles in eighteen minutes. Catherine can jog two miles in the same time. If they continue at the same rate, how many minutes longer does it take Catherine to jog three miles than it takes Matthew?
   A. 6 B. 5.5 C. 5.2 D. 4.5

6. At 11:30 AM two trains pass each other on parallel tracks traveling in opposite directions. The eastbound train averages 54 mph and the westbound train averages 45 mph. How many miles apart are the trains at 1:10 PM on the same day?
   A. 99 B. 132 C. 165 D. 198

7. 121, 758857, and 9048409 are examples of palendromic numbers. A palendromic number is one that is the same number when its digits are reversed. How many palendromic numbers are there between 200 and 1000?
   A. 8 B. 10 C. 80 D. 100

8. The diameter of a circle is 15 cm. What is the circle's area in square cm?
   A. 30π B. $\frac{225\pi}{4}$ C. $\frac{225\pi}{2}$ D. 225π

9. What is the sum of the next four numbers in the sequence of numbers?
   58, 51, 44,…
   A. 106 B. 116 C. 117 D. 80

10. The measures of the angles of a triangle are in the ratio 2:3:5 . What is the measure of the smallest angle of the triangle?
    A. 18 B. 36 C. 54 D. 90

11. How many different prime factors does 40,950 contain?
A. 7 B. 6 C. 5 D. 4

12. Solve for x: $6x - 4 = 68$
A. 12 B. 8 C. 6 D. 4

13. What is 0.025% as a decimal?
A. 2.5 B. 0.25 C. 0.0025 D. 0.00025

14. From 6:30 AM to 10:30 AM the temperature in Fairbanks rose from –9° F to +35° F. If the rise in temperature was constant, what was the temperature at 12:30 PM?
A. +57° F B. +48°F C. +46° F D. +22°F

15. A coat at Amie's Coat Shack originally cost $250 but was marked down 40% during a spring sale. If Erin bought the coat what would she have to pay with an 8% sales tax added?
A. $108.00 B. $120.00 C. $162.00 D. $170.00

16. A rectangle has sides of 40.5 and 34. What is its perimeter?
A. 1377 B. 74.5 C. 688.5 D. 149

17. Which number is largest?
A. $1256 \div 270$ B. $1256 \div 27.1$ C. $1256 \div 2.72$ D. $1256 \div .273$

18. Evaluate: $\sqrt{16} + \sqrt{36} - \sqrt{9}$
A. $\sqrt{43}$ B. $\sqrt{49}$ C. $\sqrt{61}$ D. $\sqrt{33}$

19. If $5x = 7y$, find y when x is 56.
A. 13 B. 35 C. 40 D. 54

20. If Will rides his bike 4 miles south, 7 miles west, 5 miles south, and finally 5 miles west, how far in miles is he from his starting point?
A. 21 B. 20 C. 17 D. 15

21. Evaluate: $5^3 + 5^0$
A. 125 B. 126 C. 15 D. 16

22. Evaluate: $-56 - (-16) + (-18)$
A. – 52 B. – 54 C. –90 D. –58

23. Mr. Wood has a rectangular garden that he wants to fertilize. It is 30 meters long and 25 meters wide. Each bag of fertilizer can cover 100 square meters. How many bags of fertilizer must he buy in order to fertilize the entire garden?
A. 8 B. 7 C. 4 D. 2

24. What is $\frac{50}{111}$ as a decimal?
A. $0.\overline{5}$ B. $0.\overline{50}$ C. $0.\overline{45}$ D. $0.\overline{450}$

25. Six teams are competing in a district competition. Each team plays each of the other teams only once. How many different games are played?

A. 12 B. 15 C. 30 D. 36

26. The sheep and ducks on Farmer Akenhead's farm have a total of 75 heads and 248 legs. How many sheep are on the farm?

A. 26 B. 36 C. 49 D. 54

27. Scores on a math test were 76, 87, 78, 98, 95, 76, and 92. What is the sum of the median and mode of the scores?

A. 162 B. 163 C. 174 D. 176

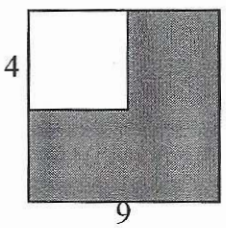
28. If $a \int b = \frac{a^2 + b^2}{3b}$, find the value of $9 \int 3$.

A. 10 B. $\frac{8}{3}$ C. $\frac{10}{9}$ D. $\frac{8}{9}$

29. Two squares share an angle as shown in the figure. Find the area of the shaded region.

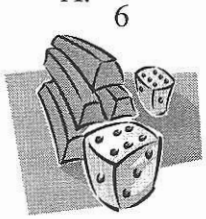
A. 75 B. 65

C. 20 D. 10



30. Two standard six-sided dice are tossed. What is the probability that the sum of the top faces is 9?

A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{9}$



Tie Breakers: Write your answers in the blanks provided on the scantron sheet.

1. The probability that an event will occur is $\frac{3}{7}$. What are the odds against the event occurring? Write your answer in the form **a:b**.

2. Solve for x: $\frac{x}{1+\frac{4}{5+6}} = 3 + \frac{6}{4+5}$

3. Evaluate: $\frac{-2^{100}}{(-2)^{96}}$