Cullman Middle School Math Tournament 7th Grade 2009

1) $2(10^2 + 3 \times 19) \div (5^2 \div \frac{1}{4}) =$ ____?____

A) 3.14 B) 112.27 C) 1796.32 D) $(4! + 3!) \div 19 - 2!$ E) None of these Answers

2) What number is an eighth of $628 \div 25$?

A) $157\frac{1}{2}$ B) 13460 C) $6\ 7/25$ D) 3.14 E) None of these Answers

3) Express as a decimal: 15/17

A) $0.88\overline{2}$ B) $1.\overline{13}$ C) $0.\overline{88235}$ D) $0.88\overline{235}$ E) None of these Answers

4) What is the sum of the 6th and 10th terms of the following sequence? $2\pi, 3\pi, 5\pi, 9\pi, 17\pi, \ldots$.

A) 77π B) 546π C) 387π D) 386π E) None of these Answers

5) What percent of 148.5 is 33.1155?

A) 22.3 % B) 448.4 % C) .223 % D) 4.484 % E) None of the Answers

6) Evaluate the expression $(a + b)^2 \div (2a) - b^2$ if $a = -3$ and $b = -4$.

A) 8 B) $-24.1\overline{6}$ C) 4.9 D) 3.14×-8 E) None of these Answers

7) What is the sum of the prime numbers between π and 10π?

A) 5π B) 124 C) 155 D) 158 E) None of these Answers

8) Find the remainder: $1{,}010{,}101 \div 444$

A) 101 B) 404 C) 40 D) 187 E) None of these Answers

9) What is the hundreds digit in this addition? $231.8 + 678.64 + 393.9 + 458.58$

A) 2 B) 5 C) 6 D) 7 E) None of these Answers

10) Find the mean rounded to the nearest hundredths of: 2.81, 1.76, 3.43, 2.81, 5.26, 2.78

A) 2.81 B) 3.42 C) 3.14 D) 3.5 E) None of these Answers

11) If a positive integer M is divided by 64, the quotient is 87 and the remainder is 57. If $x^2 = M$, find the value of $\sqrt{3x}$ if $x > 0$.

A) 15 B) 129.903 C) 43.301 D) 75 E) None of these Answers

12) $3(2\pi + 5) - 7(2\pi - 6) - 5(11\pi + 2) =$ ___?___

A) $-8(2 + 8\pi) - 1$ B) $-7(9\pi - 6) + 5$ C) $(-8\pi)^2 + 47$ D) -17π

E) None of these Answers

13) A square base pyramid has a volume of 45.5928 cu. in. If the perimeter of the base is 26.4 in., then what is the height of the pyramid?

A) $2.302\overline{6}$ in. B) $1.04\overline{6}$ in. C) 1.727 in. D) 2.982529 in. E) None of these Answers

14) For real numbers m and n, the operation # is defined as follows: $m \# n = m^2 - 6n + 7$
Find the value of: $(-2 \# 5) \# (5 \# -2)$

A) 104 B) 142 C) 214 D) 442 E) None of these Answers

15) What is the multiplicative inverse of the product of the reciprocal of the additive inverse of -0.3 and the additive inverse of the multiplicative inverse of $2.\overline{3}$?

A) $-7.\overline{6}$ B) - 0.7 C) $0.\overline{7}$ D) 9 2/7 E) None of these Answers

16) Set A = { 3, 5, 8, 9, 11 }. Set A $\cup$ Set B = { 2, 3, 5, 7, 8, 9, 11 }. Set A $\cap$ Set B = { 3, 5, 9 }.
What is the number of proper subsets of Set B?

A) 15 B) 25 C) 31 D) 32 E) None of these Answers

17) Three times a number less than twenty-eight is six less than twice the sum of the number and seven. What is the square root of the cube of the number?

A) 2 B) 4 C) 8 D) 12 E) None of these Answers

18) $10! + 8! + 9! =$ ___?___

A) $2^2 \times 5^2 \times 8!$ B) 12! C) $(3^3)!$ D) $(3!)^3$ E) None of these Answers

19) Which mathematical property states that if $4(2 - 4y) - 6\pi = \pi(2 - 4y) + 3x$, then $\pi(2 - 4y) + 3x = 4(2 - 4y) - 6\pi$?

A) Comparison B) Commutative C) Associative D) Symmetric E) None of these Answers

20) What is the negative difference of the least common multiple (LCM) and the greatest common factor (GCF) of 80, 140 and 200?

A) 2820 B) -380 C) -2780 D) -2700 E) None of these Answers

21) Idda borrowed $150.00 from his father. He agreed to repay the loan along with a 6% simple interest charge over three months. If he agrees to pay his father $45.00 each of the first two months, then how much will he have to pay on the third month to pay off his debt?

A) $60.00 B) $62.25 C) $57.75 D) $60.90 D) None of these Answers

22) If (A, B, C, D) = AC + BD − AD, then find m if (m, 3, -2, 6) = (5, 9, -4, -3).

A) - 32 B) - 6.25 C) 18 D) 6.25 E) None of these Answers

23) Subtract: $123.11_4 - 15.23_6 = \_\_?\_\_{}_{10}$

A) 107.88 B) 15 5/12 C) 15 27/31 D) 15 129/144 E) None of these Answers

24) If the radius of a circle is increased by 12 %, then how much is the area increased?

A) 144 % B) 24 % C) 44 % D) 25.44 % E) None of these Answers

25) 150 seventh graders had an apple for lunch while 144 seventh graders had an orange. 180 seventh graders had a hot dog while 47 had all three. 74 had an apple and an orange while 35 just had a hot dog. If 80 seventh grader students had both a hot dog and an orange, then how many students had either just an apple or an orange?

A) 48 B) 38 C) 65 D) 16 E) None of these Answers

Tie Breakers:

TB #1

What is the degree measure of the smallest angle formed by the hour and minute hands of a clock that reads 10:20?

TB #2

Simplify: $36 \div 2 \div 3 + 2(3^3 - 4^2) - 8 \div 2 \times 6$

TB #3

Twenty-eight is to five as eight hundred ninety-six is to __?__

Make sure before you leave the testing room that you give your Answer Sheet to the Testing Monitor. You may keep this test and the scratch paper. Answers to this test will be posted in the Lobby of the Gym.