CIE-USA/DFW

Math Comp 2011

Grade 6

30 questions

Time: One Hour

Note:

- Make sure to write all your answers on the answer sheet. Only the answer sheet will be graded.
- Each question only has one correct answer.
- Print your name clearly and legibly below.

Name _____

Code _____

Room _____

Time End _____

1. The polygon can't have __ sides.

A. 2 B. 3 C. 4 D. 5 E. 6

2. $2020 + 20220 + 20200 = 10 \times$ ___.

A. 2464 B. 4366 C. 4444 D. 4246 E. 4244

3. If 20% of a number is 30, then 200% of the same number is ___.

A. 3,000 B. 30,000 C. 150 D. 300 E. 600

4. $\frac{20+18+16+14+12+10+8+6+4+2}{10+9+8+7+6+5+4+3+2+1} =$ ___.

A. 6 B. 2 C. 3 D. 10 E. 8

5 Which of the following number is twice a multiple of 7?

A. 21 B. 69 C. 98 D. 35 E. 63

6. How many positive divisors of 120 are also multiples of 120?

A. 0 B. 1 C. 2 D. 4 E. 6

7. (number of 0s in 2 thousand)÷(number of 0s in 3 million) = ___.

A. 1:1 B. 2:3 C. 4:7 D. 1:2 E. 1:1,500

8. The area of a square with integer side-lengths couldn't be __.

A. 8 B. 4 C. 16 D. 1 E. 9

9. We have 10 tents for 24 campers. Each tent holds either 2 or 3 campers. Exactly how many of our tents hold 2?

A. 5 B. 4 C. 8 D. 7 E. 6

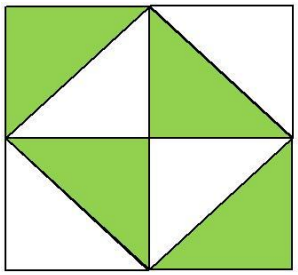
10. The digit-sum of a whole number is the sum of its digits. How many whole numbers between 10 and 100 have an even digit-sum?

A.43 B. 44 C.45 D.46 E. 47

11. $3^{2011} = 3^{2010} + 3^{2010} +$ ___.

A. 2010 B. 3^{2010} C. 3 D. 1 E. None of them

12. A square with a perimeter of 64 is split into 8 identical triangles, as shown. What's the sum of the areas of the 4 shaded triangles?



A. 16 B. 32 C. 64 D. 128 E. 25

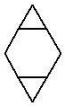
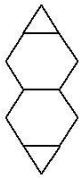
13. The sum of the 50 whole numbers 101, 102, 103, … , 150 is greater than the sum of the 50 whole numbers 51, 52, 53, L , 100 by ___.

A. 2, 000 B. 2, 500 C. 2, 250 D. 2, 550 E. 5, 000

14. What is the total number of turns that the hour hand, minute hand, and second hand go around a circular clock in one day?

A. 144 B. 733 C. 1466 D. 1440 E. 86, 400

15. It takes 10 toothpicks to build the 1st figure, and 15 toothpicks to build the 2nd one. How many toothpicks are needed to build the 7th figure?


A. 38 B. 44 C. 45 D. 40 E. 46

16. The product of 3 different primes is always exactly divisible by exactly ___ different nun-prime numbers greater than 1?

A. 4 B. 7 C. 1 D. 2 E. 3

17. Every birthday of my life, I put as many pennies in a jar as my age in years. I now have $1.20 in the jar. How old am I?

A. 10 B. 12 C. 15 D. 16 E. 18

18. Cammie has some pennies, nickels, dimes, and quarters. What is the least number of coins that she can use to make 91 cents?

A.5 B. 6 C. 4 D. 7 E. 3

19. M and N are both perfect squares less than 100. If $M - N = 33$, what is the value of $\sqrt{M} + \sqrt{N} =$ __?

A. 9 B. 7 C. 12 D. 13 E. 11

20. Given the function $y = x^2 + 8x + 21$, what is the least possible value of y for integer values of x?

A. 3 B. 10 C. 21 D. 5 E. 7

21. When the diameter of a circle increases by 2 inches, the area increases by 44%. What was the area, in square inches, of the original circle?

A. 5π B. 10π C. 25π D. 20π E. 18π

22. Find the LCM (least common multiple) of $18x^2y$, $24x^3$, and $48y^2$?

A. $144x^3y^2$ B. 6 C. $96x^3y$ D. $96x^3y^2$ E. $144x^2y$

23. In a 3-act play, each act has 5 scenes. If 2 new characters are introduced in each scene, how many characters are in this play?

A. 13 B. 10 C. 30 D. 21 E. 17

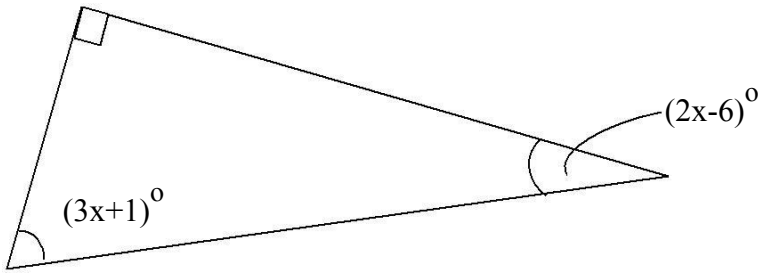
24. Given $a = 3$ and $b = 2$, find x if $x = (\frac{1}{a} - \frac{1}{b}) \div (\frac{1}{3a} + \frac{3}{2b})$.

A. $-\frac{1}{6}$ B. $-\frac{6}{31}$ C. $\frac{2}{5}$ D. $-\frac{2}{5}$ E. $\frac{2}{9}$

25. If x is a natural number, then $x - \sqrt{x}$ can't be ___.

A.0 B. 2 C. 15 D. 42 E. 20

26. Find x



A. 20 B. 21 C. 17 D. 18 E. 19

27. Alice ate $\frac{1}{4}$ of pizza, Bob then ate $\frac{1}{3}$ of what was left and finally, Chris ate $\frac{1}{2}$ of the remaining pizza. What fraction of the pizza is left?

A. $\frac{1}{24}$ B. $\frac{1}{12}$ C. $\frac{1}{6}$ D. $\frac{1}{4}$ E. $\frac{1}{3}$

28. Of the 100 numbers 1, 2, 3, … , 100, how many are both 7 more than some number in the list and 7 less than some other number in the list?

A.84 B. 86 C.85 D.87 E. 88

29. Simplify $\frac{8!}{5!}$, (**Note**: $n! = n \times (n-1) \times (n-2) \times \ldots \times 2 \times 1$)

A. 336 B. 21 C.365 D. 280 E. 56

30. If I divide my age by 7, the remainder is 4. Your age is twice mine. If I divide your age by 7, the remainder will be ___.

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

TIE BREAKER PROBLEMS:

31. What's the last digit [units digit] of 13^{2011}

A. 3 B. 1 C. 9 D. 7 E. 5

32. Consecutive letters of the alphabet, starting with A, are given increasing consecutive integer values. If $H + K + L = 2011$, then the average of all 26 of the consecutive integers is ___.

A. 650 B. 673.5 C. 655.5 D. 663 E. 670

SCRAP PAPER