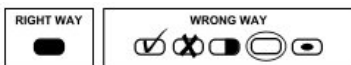




THIRTY-FIFTH ANNUAL SIXTH GRADE MATH BLAST
BINARY STAR, MARCH 12, 2016

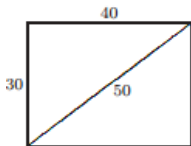
Directions:

- 1) Use a #2 pencil
- 2) Scratch paper may be used.
- 3) Put both **NAMES** and **SCHOOL NAME** on scantron answer sheet.
- 4) Transfer answers to scantron sheet carefully; be sure to make marks on answer sheet dark so machine will pick them up.

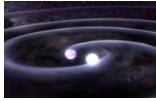


- 5) There is no penalty for guessing.
- 6) Ties will be broken by previously selected questions.
- 7) All fractions are to be in lowest terms.
- 8) Use 3.14 for π .
- 9) N.O.T. means "None of These"

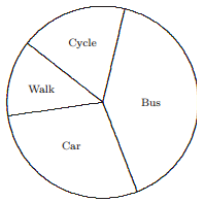
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1. A park is 40 feet long, 30 feet wide and 50 feet across diagonally. How many feet less is it to walk diagonally across the park rather than around the two sides?



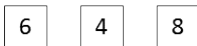
- (A) 10 (B) 20 (C) 30 (D) 40 (E) 50
2. In the number sentence, $3 \square 5 + 6 = 21$, which mathematical symbol is represented by the square?
(A) = (B) + (C) - (D) X (E) \div



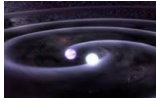
3. Anthony is 6 years old. Rianna is one third of Anthony's age. Shawna is 14 years older than Rianna. How old is Shawna?
(A) 39 (B) 11 (C) 25 (D) 19 (E) 16
4. The pie chart below shows how students in Stanislaus County go to school. Which statement is true?



- (A) More than half the students either walk or cycle.
(B) More than half the students come to school by car.
(C) More than a quarter of the students walk to school.
(D) More than half the students either take the bus or cycle.
(E) More students walk to school than come by car.
5. Two whole numbers are multiplied to give a total of 24. The difference between the numbers could be
(A) 1 (B) 2 (C) 4 (D) 5 (E) 8
6. The digits 6, 4, 8 are written on three cards as shown. Six different 3-digit numbers can be made using these three cards. If these numbers are arranged from smallest to largest, in which position is 648?



- (A) Second (B) third (C) fourth (D) fifth (E) sixth

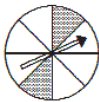


7. There are five blocks of different colors stacked on top of each other. The red block is above the purple block, the blue block is below the orange block and the green block is below the blue and above the red. Which color is the bottom block?

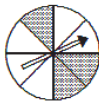


- (A) Red (B) green (C) blue (D) orange (E) purple
8. Which of the spinners below would give a one-in-four chance of the arrow landing in the shaded region?

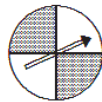
(A)



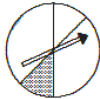
(B)



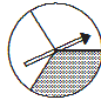
(C)



(D)

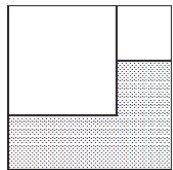


(E)

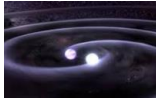


9. A large square contains two small squares with areas 25 inches and 4 inches. What is the perimeter, in inches, of the shaded area?

- (A) 20cm (B) 21cm (C) 24cm (D) 28cm
(E) N.O.T.



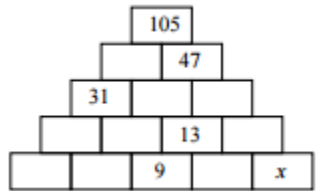
10. When a math class is split into groups of four, there are two students left. When split into groups of five, there is one student left. There are 15 boys in the class and a smaller number of girls. How many girls are there in the class?
- (A) 6 (B) 11 (C) 16 (D) 21 (E) 26



11. Which of the following calculations gives the largest answer?
(A) $1 - 2 + 3 + 4$ (B) $1 + 2 - 3 + 4$ (C) $1 + 2 + 3 - 4$
(D) $1 - 2 - 3 - 4$ (E) $1 - 2 - 3 + 4$
12. It has just turned 10:22 p.m., how many minutes are there until midnight?
(A) 178 (B) 138 (C) 128 (D) 108 (E) 98

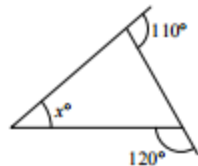
13. What is the closest value of $\frac{12,345}{1+2+3+4+5}$?
(A) 1 (B) 8 (C) 678 (D) 823 (E) 12,359

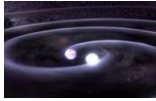
14. In this partially completed pyramid, each rectangle is to be filled with the sum of the two numbers in the rectangles immediately below it. What number should replace x ?
(A) 3 (B) 4 (C) 5 (D) 7 (E) 12



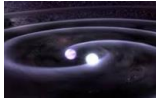
15. The difference between a third of a certain number and a fourth of the same number is 3. What is that number?
(A) 24 (B) 36 (C) 48 (D) 60 (E) 72

16. What is the value of x in this triangle?
(A) 45 (B) 50 (C) 55 (D) 60 (E) 65

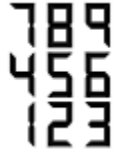




17. The result of the calculation $123,456,789 \times 8$ is almost the same as $987,654,321$ except that two of the digits are in a different order. What is the sum of these two digits?
(A) 3 (B) 7 (C) 9 (D) 15 (E) 17
18. Which of the following has the same remainder when it is divided by 2 as when it is divided by 3?
(A) 3 (B) 5 (C) 7 (D) 9 (E) 11
19. A 63-year-old man clocked up 25,048 miles on a rowing machine that he received for his 50th birthday. Roughly how many miles per year has he rowed since he was given the machine?
(A) 200 (B) 500 (C) 1000 (D) 2000 (E) 4000
20. In the expression $1 \square 2 \square 3 \square 4$ each \square is to be replaced by either $+$ or \times . What is the largest value of all the expressions that can be obtained in this way?
(A) 10 (B) 14 (C) 15 (D) 24 (E) 25
21. An eagle weighs the total of 2 kg plus a third of its own weight. What is the weight of the eagle in kg?
(A) $2\frac{1}{2}$ (B) 3 (C) 4 (D) 6 (E) 8



22. Digits on a calculator are represented by a number of horizontal and vertical illuminated bars. The digits and the bars which represent them are shown in the diagram. How many digits are both prime and represented by a prime number of illuminated bars?



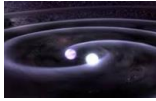
- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4
23. Which of the following is divisible by all of the integers from 1 to 10 inclusive?
(A) 23×34 (B) 34×45 (C) 45×56 (D) 56×67 (E) 67×78

Jack of Hearts: "I stole the tarts."
Jack of Clubs: "The Jack of Hearts is lying."
Jack of Diamonds: "The Jack of Clubs is lying."
Jack of Spades: "The Jack of Diamonds is lying."

24. How many of the four Jacks were telling the truth?
(A) 1 (B) 2 (C) 3 (D) 4 (E) N.O.T.
25. Each of the fractions $\frac{2637}{18,459}$ and $\frac{5274}{36,918}$ uses the digits 1 to 9 exactly once. The first fraction simplifies to $\frac{1}{7}$. What is the simplified form of the second fraction?
(A) $\frac{1}{8}$ (B) $\frac{1}{7}$ (C) $\frac{5}{34}$ (D) $\frac{9}{61}$ (E) $\frac{2}{7}$



26. One half is a third of it. What is it?
(A) 3 (B) $\frac{2}{3}$ (C) $1\frac{1}{2}$ (D) $\frac{1}{3}$ (E) N.O.T.
27. Solve the following expression: $\frac{32-2^3 \times 3^0}{6}$
(A) 12 (B) 4 (C) 1.3 (D) 3 (E) N.O.T.
28. If 3 pieces of chalk are the same length as 2 popsicle sticks, how many popsicle sticks would be the same as 12 pieces of chalk?
(A) 18 (B) 6 (C) 8 (D) 4 (E) N.O.T.
29. Six students sit in a circle. They are evenly spaced apart and are numbered in order. Which student is directly opposite student number four?
(A) 1 (B) 2 (C) 3 (D) 4 (E) N.O.T.
30. Mitch's truck can hold 8 bags of recyclables. What is the minimum number of trips Mitch will have to make to move 33 bags of recyclables?
(A) 3 (B) 4 (C) 5 (D) 6 (E) N.O.T.
31. A student has a mean score of 88 in her math class. This is the average of her first five math tests. What must she score on the sixth test in order to have a mean score of 90?
(A) 88 (B) 90 (C) 98 (D) 100 (E) N.O.T.



32. A local market buys oranges at 3 for 10¢ and sells them at 5 for 20¢. How many oranges must the market sell in order to make a profit of \$1?
(A) 20 (B) 150 (C) 50 (D) 225 (E) N.O.T.
33. The sum of two numbers is 27. Their product is 180. What are the numbers?
(A) 9 & 20 (B) 7 & 20 (C) 12 & 15 (D) 13 & 14 (E) N.O.T.
34. Suppose a committee of 3 people will be selected from among 5 people. How many different committees can be formed?
(A) 15 (B) 2 (C) 10 (D) 8 (E) N.O.T.
35. The wheels of a bicycle have a diameter of 200 cm. How far does the bicycle travel, in cm, with each turn of the wheel?
(A) 100cm (B) 314cm (C) 628cm (D) 1256cm (E) N.O.T.