Kansas City Area Teachers of Mathematics
2015 KCATM Math Competition

NUMBERS AND OPERATIONS
GRADE 4

<u>NO</u> CALCULATOR

<u>INSTRUCTIONS – You MAY write on this test!</u>

- **Do not open this booklet** until instructed to do so.

- Time limit: **15 minutes**

- You **may NOT use calculators** on this test.

- Some multiple-choice questions do **NOT** have the correct answer as one of the choices. On those questions, the response is: **E. None of the above**
    Example: 3 + 4 =   A. 4   B. 5   C. 6   D. 8   **E. None of the above**

- If a division problem has a remainder (for instance 21 ÷ 5 = ??), the answer is in this form: **4 r 1**

- **Simplify ALL fractions.** Fractions must be expressed in lowest terms.

- All answers that are improper fractions are written as mixed numerals or whole numbers.

    Examples: $\dfrac{4}{2}$ should be written as 2

    $\dfrac{7}{3}$ should be written as $2\dfrac{1}{3}$

Student Name _____ **Student Number** _____
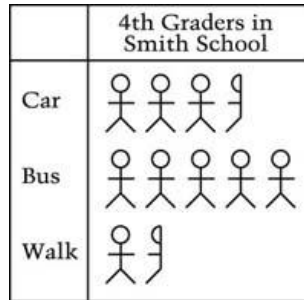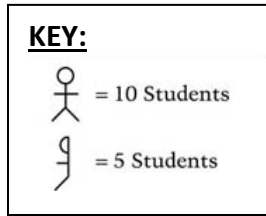
School _____
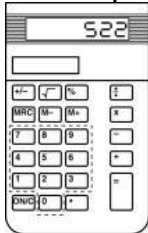
1. Which number is missing in the factors of 24?

    1, 2, 3, 4, 8, 12, 24

    A. 5   B. 6   C. 7   D. 18   E. None of the above

2. Which number is 10 more than 5,237?

    A. 5,247   B. 5,238   C. 5,337   D. 6,237   E. None of the above

3. Eleven tens plus seven ones is equal to which number?

    A. 17   B. 117   C. 107   D. 711   E. None of the above

4. Which expression is **NOT** equal in value to 8 x 560?

    A. 8 x 500 + 8 x 60   B. 4,000 + 400 + 80
    C. 8(500 + 60 + 1)   D. 60 x 8 + 500 x 8   E. None of the above

5.   Alex heard on the radio that the population of Olathe is one hundred twenty-five thousand, eight hundred seventy-two. Which of these represents the population of Olathe?

    A. 12,582   B. 25,872
    C. 120,872   D. 125,872   E. None of the above

6. There are twice as many girls as boys in Mr. Allen's fourth grade class. If there are 8 boys, how many students are in the class?

    A. 8   B. 16   C. 24   D. 32   E. None of the above

7.   What is the answer to: 24 ÷ (6 ÷ 2)?

    A. 2   B. 4   C. 6   D. 8   E. None of the above

8. If there are 342 students in your elementary school and your principal wants to break this number up into equal teams of 6 students each, how many teams can be formed?

    A. 56   B. 57   C. 58   D. 59   E. None of the above

9.   Which number is expressed with the Base-10 blocks below?
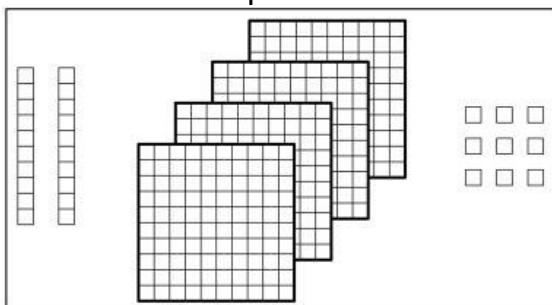
A. 249
B. 492
C. 429
D. 924
E. None of the above

Use the pictograph below for #10-#11.

KEY:

🧍 = 10 Students

🧍 = 5 Students

4th Graders in Smith School

Car	🧍🧍🧍🧍
Bus	🧍🧍🧍🧍🧍
Walk	🧍🧍

10. How many students get to school by car or bus?
   A. 35   B. 85   C. 50   D. 15   E. None of the above

11. What is the difference in the number of 4th grade students who take the bus compared to walking in Smith School?
   A. 35   B. 20   C. 100   D. 65   E. None of the above

12. Each ink pen costs eighty-seven cents and you purchase six of them. You use a calculator and the display is shown below. How much was the cost of the ink pens?

5.22

   A. $52.20
   B. $522
   C. $5.22
   D. $0.52
   E. None of the above

13. What is the product of: 4 x 0 x 10 x 2?
   A. 80   B. 20   C. 40   D. 0   E. None of the above

14. If each tomato plant gets 24 tomatoes on it throughout the summer, how many tomatoes would you get if you plant 8 plants?

   A. 192   B. 184   C. 240   D. 32   E. None of the above

15. Each card you create takes a half an hour. If you have 24 students in your class, how long would it take for you to make a card for each student and one for your teacher?

   A. 8 hrs.   B. 8 ½ hrs.   C. 12 hrs.   D. 12 ½ hrs.   E. None of the above

16. Which number(s) make this inequality statement true?   **5 + ___ < 8**

   A. 1, 2, 4   B. 1, 2   C. 4, 5, 6, 7   D. 1, 2, 3   E. None of the above

17.   100,000 divided by 10 is:

   A. 1,000,000   B. 100,000   C. 10,000   D. 1,000   E. None of the above

The fraction strips below may help you for problems 18-21.
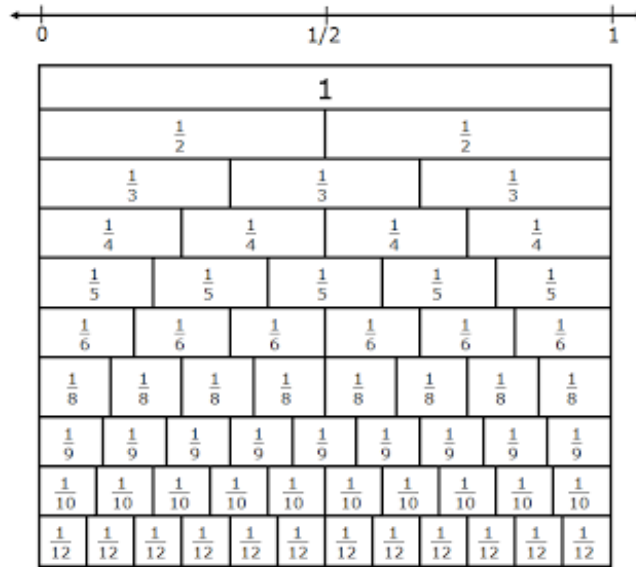
18. Which fraction is equal to $\dfrac{2}{5}$?

   A. $\dfrac{3}{8}$ B. $\dfrac{3}{9}$ C. $\dfrac{4}{10}$ D. $\dfrac{5}{12}$ E. None of the above

19. Which statement is **false**?

   A. $\dfrac{4}{8} = \dfrac{3}{6}$ B. $\dfrac{4}{9} < \dfrac{5}{12}$ C. $\dfrac{4}{6} = \dfrac{8}{12}$

   D. $\dfrac{4}{5} > \dfrac{6}{8}$ E. None of the above

20. Use the pattern to determine what the first number that will be greater than 1 if the pattern continues.

$$\frac{1}{20}, \frac{4}{20}, \frac{7}{20}, \frac{10}{20}, \frac{13}{20}, \dots$$

   A. $\dfrac{20}{20}$ B. $\dfrac{21}{20}$ C. $\dfrac{22}{20}$ D. $\dfrac{23}{20}$ E. None of the above

21. Find the sum of $\dfrac{1}{2} + \dfrac{3}{10}$.

   A. $\dfrac{4}{5}$ B. $\dfrac{7}{10}$ C. $\dfrac{9}{10}$ D. 1   E. None of the above

22. Which set of numbers is listed from smallest to largest?

    A. 1,001   1,100   1,011   B. 2,200   2,022   2,020
    C. 3,030   3,003   3,300   D. 4,404   4,040   4,044
    E. None of the above

23. Jose's father is 9 years older than three times his age. Jose is 8 years old. How old is his father?

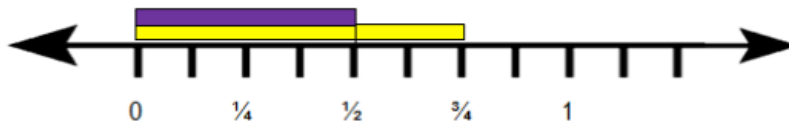   A. 27   B. 41   C. 36   D. 33   E. None of the above

24. How much change will Kacey get back from $5 if Kacey buys 2 notebooks that cost $1.90 each?

    A. $1.20   B. $3.10   C. $3.80   D. $0.20   E. None of the above

25. There are 15 boys and 12 girls in Mrs. Dawson's class. What is the ratio of girls to boys?

    A. $\frac{6}{7}$ B. $\frac{3}{5}$ C. $\frac{4}{5}$ D. $\frac{1}{3}$ E. None of the above

26. Which of the following could be shown by the shading of the number line below?

    A. $\frac{3}{4}+\frac{1}{2}$ B. $\frac{3}{4}-\frac{1}{2}$ C. $\frac{1}{2}\times\frac{3}{4}$ D. $\frac{3}{4}\div\frac{1}{2}$ E. None of the above

27. Which of the following inequalities is **correct** when comparing 0.66 and 2/3?

    A. 0.66 > 2/3   B. 0.66 = 2/3   C. 0.66 < 2/3   D. 2/3 < 0.66   E. None of the above

28. If A = 1 and E = 2, then **what is D**?
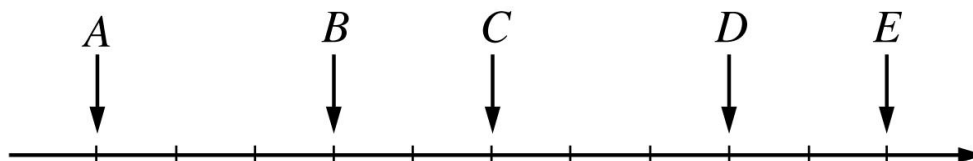
    A. 1.3   B. 1.5   C. $1\frac{2}{3}$ D. $1\frac{4}{5}$ E. None of the above

29. What is $1\dfrac{1}{6} + 2\dfrac{1}{3}$?

     A. $3\dfrac{2}{9}$ B. $3\dfrac{1}{2}$ C. $3\dfrac{2}{3}$ D. $3\dfrac{5}{6}$ E. None of the above

30. $\dfrac{5}{6} \times \dfrac{4}{15}$

     A. $\dfrac{2}{9}$ B. $\dfrac{1}{2}$ C. $\dfrac{1}{3}$ D. $\dfrac{20}{21}$ E. None of the above

31. $\dfrac{4}{5} - \dfrac{1}{5} + \dfrac{3}{5}$

     A. 0   B. $1\dfrac{2}{5}$ C. $\dfrac{8}{15}$ D. $1\dfrac{1}{5}$ E. None of the above

32.   3 + 3 x 3 – 3 x 3 + 3

     A. 48   B. 6   C. 30   D. 0   E. None of the above

33.   36 – 8 x 2 + 4

     A. 24   B. 60   C. -12   D. 16   E. None of the above

34. $6 ÷ 0.25

     A. 6.25   B. 1.5   C. 5.25   D. 24   E. None of the above

For question #35, there are four problems that have been worked. One of the problems has an incorrect answer. Identify the problem that has an **incorrect** answer.

35.   A.   47,301   B.   46,000   C.   94   D. 657 ÷ 3 = 219
              2,700   - 1,799   x 15
           + 23,398   44,301   1,410   E. None of the above
              73,399

36. Find the missing digits A, B, C, and D in the problem:

    a 8 7   A.   a = 8, b = 7, c = 9, d = 3
    7 **b** 2   B.   a = 2, b = 6, c = 7, d = 9
    5 6 **c**   C.   a = 6, b = 7, c = 9, d = 2
d 0 2 8   D.   a = 1, b = 6, c = 6, d = 2
                E.   None of the above

Determine the closest estimate for problems 37- 40.

37. 2500 x 10.3   A. 250   B. 2,500   C. 25,000   D. 25

38. 8889 ÷ 8   A. 1111   B. 111   C. 1112   D. 1110

39. $\left(7\frac{1}{9}\right)+\left(8\frac{11}{12}\right)+\left(9\frac{5}{6}\right)$ A. 27   B. 26   C. 15   D. 25

40. Gas went down to below $2 per gallon this winter. If you paid $2 per gallon rather than $3 per gallon, what was the **approximate savings** of taking a 1,000 mile trip if you get 25 miles per gallon?

    A. $18   B. $20   C. $32   D. $40

Shade the correct answer!

Example: A   ●   C   D   E

Name_____

School _____

1.	A	B	C	D	E	21.	A	B	C	D	E
2.	A	B	C	D	E	22.	A	B	C	D	E
3.	A	B	C	D	E	23.	A	B	C	D	E
4.	A	B	C	D	E	24.	A	B	C	D	E
5.	A	B	C	D	E	25.	A	B	C	D	E
6.	A	B	C	D	E	26.	A	B	C	D	E
7.	A	B	C	D	E	27.	A	B	C	D	E
8.	A	B	C	D	E	28.	A	B	C	D	E
9.	A	B	C	D	E	29.	A	B	C	D	E
10.	A	B	C	D	E	30.	A	B	C	D	E
11.	A	B	C	D	E	31.	A	B	C	D	E
12.	A	B	C	D	E	32.	A	B	C	D	E
13.	A	B	C	D	E	33.	A	B	C	D	E
14.	A	B	C	D	E	34.	A	B	C	D	E
15.	A	B	C	D	E	35.	A	B	C	D	E
16.	A	B	C	D	E	36.	A	B	C	D	E
17.	A	B	C	D	E	37.	A	B	C	D	E
18.	A	B	C	D	E	38.	A	B	C	D	E
19.	A	B	C	D	E	39.	A	B	C	D	E
20.	A	B	C	D	E	40.	A	B	C	D	E

Shade the correct answer!
Example: A ● C D E

Name_____

School _____

ANSWER KEY - 03.07.15 JH

1.	A	●	C	D	E		21.	●	B	C	D	E
2.	●	B	C	D	E		22.	A	B	C	D	●
3.	A	●	C	D	E		23.	A	B	C	●	E
4.	A	B	●	D	E		24.	●	B	C	D	E
5.	A	B	C	●	E		25.	A	B	●	D	E
6.	A	B	●	D	E		26.	A	●	C	D	E
7.	A	B	C	●	E		27.	A	B	●	D	E
8.	A	●	C	D	E		28.	A	B	C	●	E
9.	A	B	●	D	E		29.	A	●	C	D	E
10.	A	●	C	D	E		30.	●	B	C	D	E
11.	●	B	C	D	E		31.	A	B	C	●	E
12.	A	B	●	D	E		32.	A	●	C	D	E
13.	A	B	C	●	E		33.	●	B	C	D	E
14.	●	B	C	D	E		34.	A	B	C	●	E
15.	A	B	C	●	E		35.	A	●	C	D	E
16.	A	●	C	D	E		36.	A	B	●	D	E
17.	A	B	●	D	E		37.	A	B	●	D	
18.	A	B	●	D	E		38.	●	B	C	D	
19.	A	●	C	D	E		39.	A	●	C	D	
20.	A	B	●	D	E		40.	A	B	C	●	