Kansas City Area Teachers of Mathematics
2013 KCATM Math Competition

NUMBERS AND OPERATIONS
GRADE 4

NO CALCULATOR

INSTRUCTIONS – You MAY write on this test!

- **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: $\frac{4}{2}$ should be written as 2

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

Student Name _____ Student Number _____

School _____

1. Sophia is 9 years old. Her uncle is 4 times Sophia's age. How old is Sophia's uncle?
   A. 32 B. 34 C. 36 D. 45 E. None of the above

2. Alden's family traveled 194 miles the first day of vacation, 173 miles the second day, and 98 miles the third day. **Approximately** how far did they travel in those 3 days?
   A. 475 mi. B. 430 mi. C. 500 mi. D. 400 mi. E. None of the above

3. An adult brown pelican eats three times as many fish as a young brown pelican. If one adult brown pelican eats 420 fish, how much would 2 small pelicans eat?
   A. 140 fish B. 240 fish C. 180 fish D. 280 fish E. None of the above

4. Ethan is 8 years old. His grandfather is eight times his age. How old is his grandfather?
   A. 56 yrs. B. 58 yrs. C. 64 yrs. D.72 yrs. old E. None of the above

5. Your class wants to recycle 500 aluminum cans this week to raise money for a family in your school. The first day your class collected 5 cases of 24 cans, the second day 90 cans were collected. How many more cans do they have to collect on the next three days to meet their goal?

   A. 290 cans B. 300 cans C. 310 cans D. 280 cans E. None of the above

6. Which number is represented by the expanded form: Four hundred fifty-seven thousand?

   A. 400,570 B. 450,700 C. 400,057 D. 457,000 E. None of the above

7. Five tens plus six tens is equal to which number?
   A. 56 B. 110 C. 560 D. 65 E. None of the above

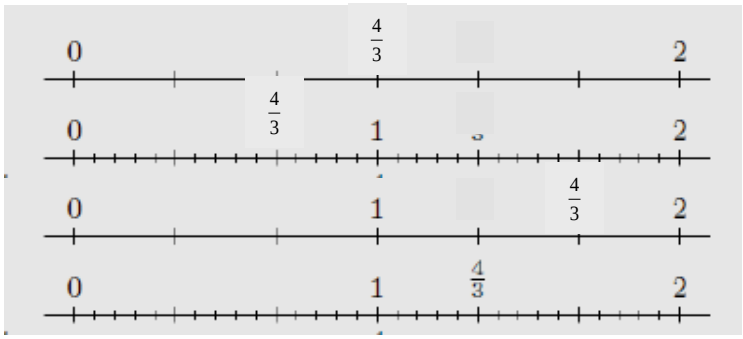
8. Which expression is **<u>NOT</u>** equal in value to 8 x 549?

   A. 8 x 500 + 8 x 40 + 8 x 9 B. 4,000 + 320 + 72
   C. 8(500 + 40 + 9) D. 8 x 500 + 8 x 49 E. None of the above

9. Which fraction is equivalent to $\frac{2}{5}$?

   A. $\frac{6}{10}$ B. $\frac{6}{15}$ C. $\frac{8}{15}$ D. $\frac{10}{20}$ E. None of the above

10. Where is $\frac{4}{3}$ **correctly** placed on the number line?

A. 

B.

C.

D.

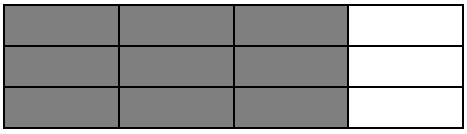
E. None of the above

11. Which diagram does **NOT** show the value of $\frac{2}{3}$ shaded in?

A. 

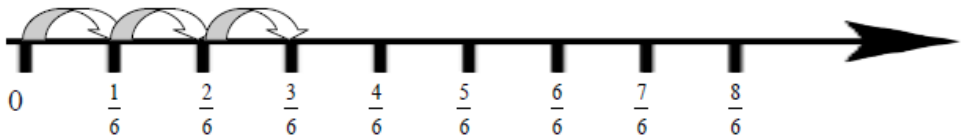
B. 

C. 

D. 

E. None of the above

12. Which of the following statements is **NOT** represented by the following number line?



A. $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

B. $3\times\frac{1}{6}$

C. $\frac{1}{2}-\frac{1}{6}$

D. $\frac{2}{6}+\frac{1}{6}$

E. None of the above

13. The mixed number: $7\frac{1}{2}$ is equal to which improper fraction?

A. $\frac{10}{2}$ B. $\frac{14}{2}$ C. $\frac{13}{2}$ D. $\frac{15}{2}$ E. None of the above

14. What is $\frac{5}{8}+\frac{5}{8}$?

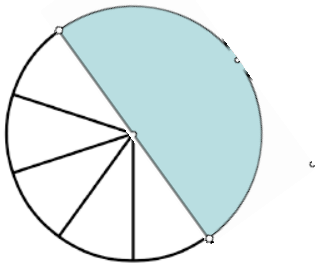
A. $1\frac{1}{4}$ B. $\frac{10}{16}$ C. $\frac{5}{8}$ D. $1\frac{2}{5}$ E. None of the above

15. Which of the following inequalities is **correct** when comparing 0.32 and 0.34?

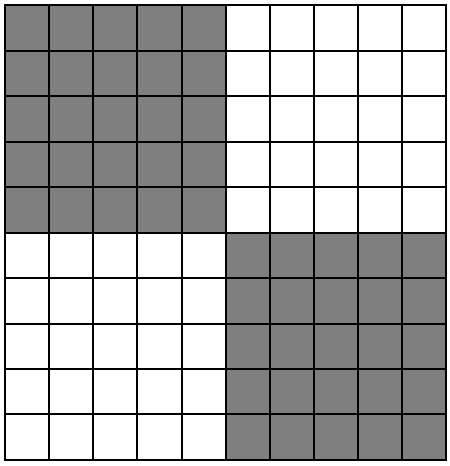
A. 0.32 < 0.34 B. 0.32 > 0.34
C. 0.34 < 0.32 D. 0.32 = 0.34 E. None of the above

16. Which figure does **NOT** show a fraction equivalent to 0.5 shaded in?

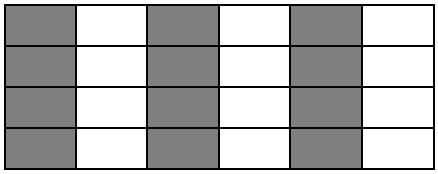
A.



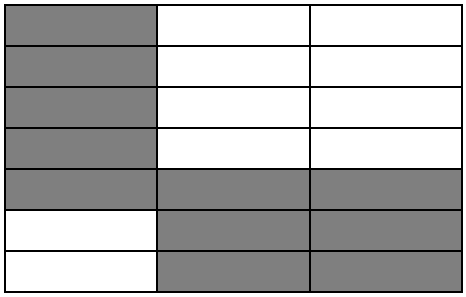
B.



C.

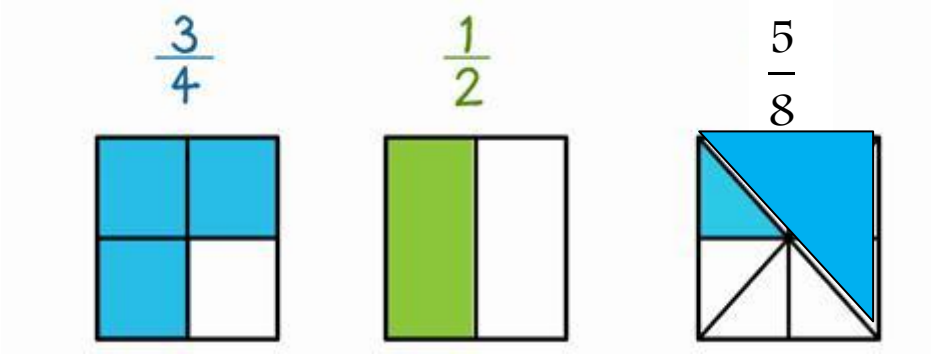


D.



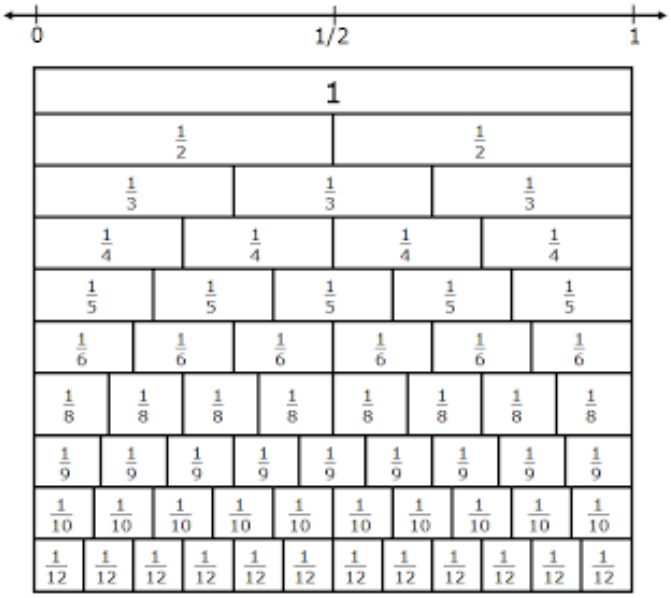
E. None of the above

17. Use the diagram to list the fractions from **least to greatest**?



A. $\frac{3}{4}, \frac{1}{2}, \frac{5}{8}$ B. $\frac{1}{2}, \frac{5}{8}, \frac{3}{4}$ C. $\frac{5}{8}, \frac{1}{2}, \frac{3}{4}$ D. $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}$ E. None of the above

18. Use the fraction strips to compare 5/10 to 5/9. Which statement is **true**?

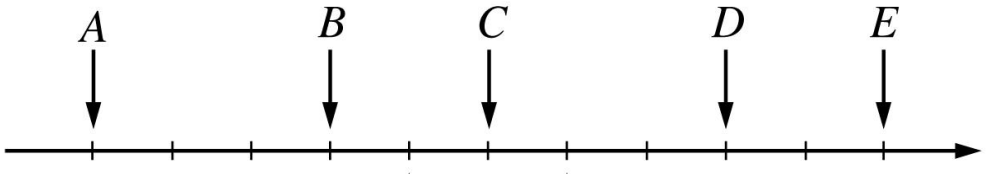


A. $\frac{5}{10} = \frac{5}{9}$ B. $\frac{5}{10} > \frac{5}{9}$

C. $\frac{5}{9} < \frac{5}{10}$ D. $\frac{5}{9} > \frac{5}{10}$

E. None of the above

19. If A = 0 and E = 1, then **what is D**?



A. 0.8 B. 0.9 C. $\frac{9}{10}$ D. $\frac{9}{11}$ E. None of the above

20. 6,000 – 1,999

A. 4,111 B. 4,001 C. 4,011 D. 4,101 E. None of the above

21. $\frac{1}{4}+\frac{3}{4}+\frac{1}{4}$

A. $1\frac{1}{4}$ B. $1\frac{1}{2}$ C. $\frac{5}{12}$ D. $1\frac{3}{4}$ E. None of the above

22. $\frac{3}{4}\times\frac{3}{4}$

A. $\frac{1}{2}$ B. $\frac{3}{4}$ C. $1\frac{1}{8}$ D. $\frac{9}{16}$ E. None of the above

23. $7\frac{4}{5}-3\frac{1}{5}$

A. 4 B. $4\frac{3}{5}$ C. $3\frac{2}{5}$ D. $5\frac{1}{5}$ E. None of the above

24. 403 ÷ 5

A. 80 r 2 B. $80\frac{3}{5}$ C. $8\frac{3}{5}$ D. $81\frac{1}{5}$ E. None of the above

25. 4 x (5 + 9)

A. 180 B. 29 C. 60 D. 56 E. None of the above

26. 22 – (3 + 10)

A. 19 B. 9 C. 29 D. 34 E. None of the above

27. 24 + 8 ÷ 4

A. 8 B. 36 C. 26 D. 7 E. None of the above

28. $1\frac{2}{3} \times 3$

A. 5 B. $\frac{5}{3}$ C. 3 D. $3\frac{2}{3}$ E. None of the above

29. 300 ÷ 10

A. 3 B. 30 C. 0.3 D. 0.03 E. None of the above

30. \$5.00 ÷ 25

A. 20 B. 21 C. 23 D. 25 E. None of the above

31. $\frac{3}{4} \times 16$

A. $\frac{19}{4}$ B. $\frac{19}{20}$ C. 12 D. 7 E. None of the above

32. 435 + 39 + 241

A. 474 B. 705 C. 615 D. 715 E. None of the above

33. \$7.58 + \$1.79

A. \$9.37 B. \$8.21 C.\$12.21 D. \$12.09 E. None of the above

34. **What change will the cashier give you** if you purchase 4 apples at \$0.25 each, one box of crackers for \$1.70, and a Gatorade for \$1.40. You give the cashier \$5.

A. \$0.90 B. \$1.65 C. \$1.90 D. \$4.10 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.
$$\begin{array}{r} 24{,}176 \\ 5{,}287 \\ +\ 68{,}009 \\ \hline 97{,}472 \end{array}$$

B.
$$\begin{array}{r} 41{,}564 \\ -\ 5{,}678 \\ \hline 35{,}996 \end{array}$$

C.
$$\begin{array}{r} 97 \\ \times\ 23 \\ \hline 2{,}231 \end{array}$$

D. $567 \div 4 = 141$ r 3

E. None of the above

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

$$\begin{array}{r} \mathbf{a}\ 3\ 8 \\ 8\ \mathbf{b}\ 6 \\ 1\ 4\ \mathbf{c} \\ \hline \mathbf{d}\ 4\ 0\ 7 \end{array}$$

A. a = 2, b = 4, c = 3, d = 1
B. a = 4, b = 5, c = 3, d = 2
C. a = 5, b = 3, c = 2, d = 1
D. a = 4, b = 2, c = 3, d = 1
E. None of the above

Determine the <u>closest estimate</u> for problems 37- 40.

37. 5.1 x 200 A. 1100 B. 1000 C. 1200 D. 1300

38. 695 ÷ 10 A. 7 B. 700 C. 70 D. 0.7

39. $\left(3\frac{1}{8}\right)+\left(7\frac{11}{12}\right)-\left(1\frac{19}{20}\right)$ A. 13 B. 10 C. 8 D. 9

40. What is the **approximate cost** of taking a 1000 mile trip if you get 20 miles per gallon of gas and the gas costs $3.06 per gallon?

A. $150 B. $300 C. $600 D. $200

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

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