

Kansas City Area Teachers of Mathematics
2014 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 $21 \div 5 = ??$), 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

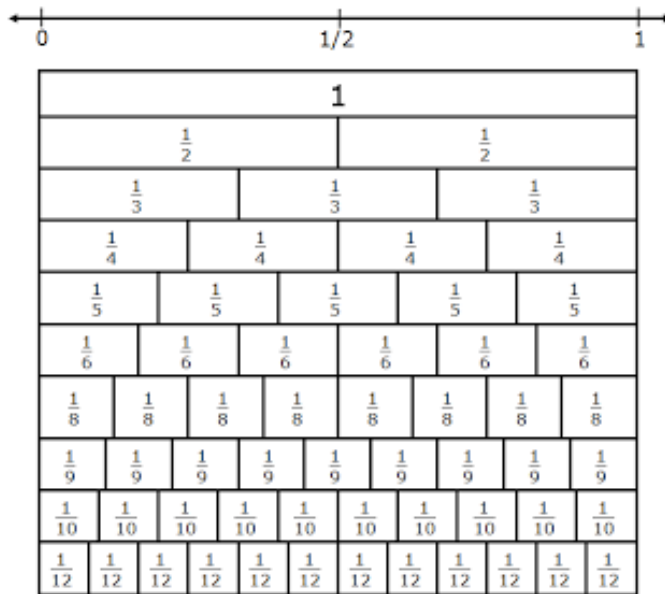
$\frac{7}{3}$ should be written as $2\frac{1}{3}$

Student Name _____ Student Number _____

School _____

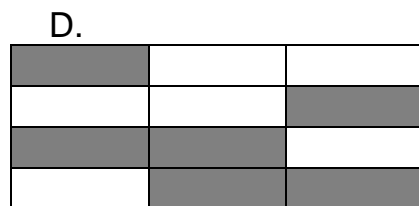
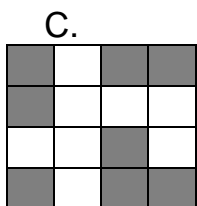
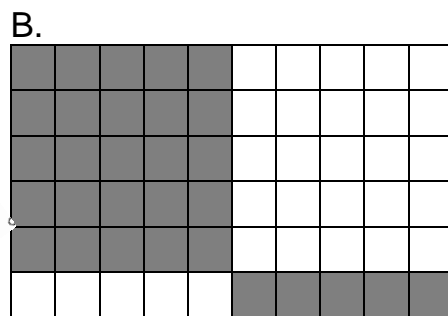
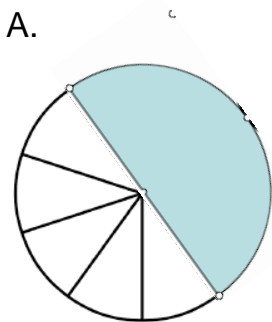
- Which number is represented by the expanded form: Three hundred thousand twenty-four?
 A. 300,240 B. 324,000 C. 300,024 D. 300,204 E. None of the above
- Six tens plus seven tens is equal to which number?
 A. 67 B. 130 C. 167 D. 76 E. None of the above
- Which expression is **NOT** equal in value to 6×459 ?
 A. $6 \times 400 + 6 \times 50 + 6 \times 9$ B. $2,000 + 650 + 4$
 C. $6(400 + 50 + 9)$ D. $6 \times 400 + 6 \times 59$ E. None of the above

The fraction strips below may help you for problems 4-5.



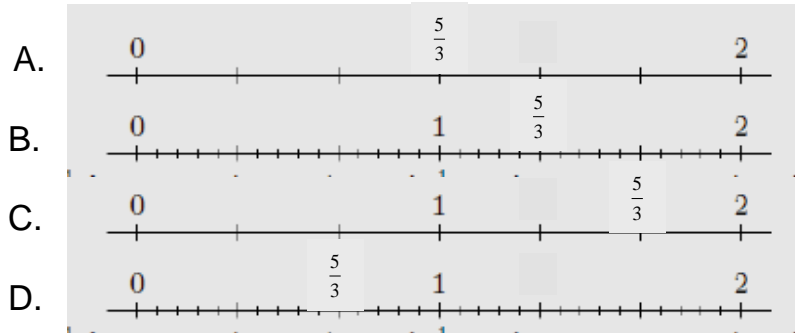
- Which fraction is **NOT** equivalent to $\frac{3}{4}$?
 A. $\frac{9}{12}$ B. $\frac{6}{8}$ C. $\frac{12}{16}$ D. $\frac{18}{24}$ E. None of the above
- Compare $\frac{4}{5}$ to $\frac{7}{9}$. Which statement is **true**?
 A. $\frac{4}{5} = \frac{7}{9}$ B. $\frac{4}{5} < \frac{7}{9}$ C. $\frac{7}{9} > \frac{4}{5}$ D. $\frac{7}{9} < \frac{4}{5}$
 E. None of the above

6. Maria is 9 years old. Her grandfather is 7 times Maria's age. How old is Maria's grandfather?
 A. 61 B. 63 C. 66 D. 72 E. None of the above
7. Ben's family traveled 195 miles the first day of vacation, 106 miles the second day, 98 miles the third day, and 210 miles the fourth day. **Approximately** how far did they travel in the four days to the nearest hundred miles?
 A. 700 mi. B. 500 mi. C. 600 mi. D. 400 mi. E. None of the above
8. An adult West Highland Terrier dog weighs approximately three times as much as an eight week old puppy. If Lily, a West Highland Terrier adult female, weighs 13 pounds, about how much would an eight week old puppy weigh?
 A. 5 pounds B. 3 pounds C. 2 pounds D. 4 pounds E. None of the above
9. Zach's uncle is 42 years old. Zach is one-fourth his age. How old is Zach?
 A. 8 yrs. B. 9 yrs. C. 10 yrs. D. 11 yrs. E. None of the above
10. 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 6 cases of 24 cans each, the second day 9 cases of 24 can were collected. **How many more cans** do they have to collect on the next three days to meet their goal?
 A. 140 cans B. 360 cans C. 461 cans D. 164 cans E. None of the above
11. Which of the following inequalities is **correct** when comparing 0.33 and $1/3$?
 A. $0.33 < 1/3$ B. $0.33 > 1/3$ C. $0.33 = 1/3$ D. $1/3 < 0.33$ E. None of the above
12. Which figure does **NOT** show a fraction equivalent to 0.5 shaded in?



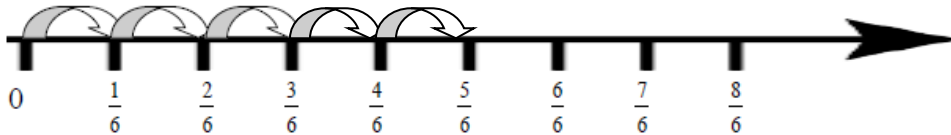
E. None of the above

13. Where is $\frac{5}{3}$ correctly placed on the number line?



E. None of the above

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



- A. $5 \times \frac{1}{6}$ B. $\frac{1}{6} + \frac{1}{2}$ C. $1 - \frac{1}{6}$ D. $\frac{2}{3} + \frac{1}{6}$ E. None of the above

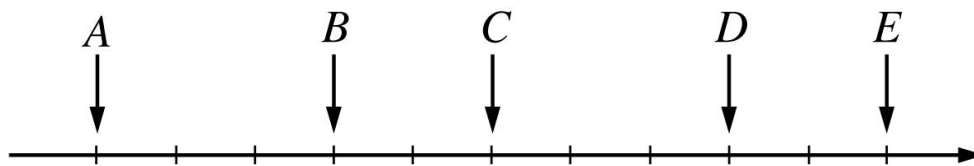
15. The mixed number: $9\frac{1}{2}$ is equal to which improper fraction?

- A. $\frac{12}{2}$ B. $\frac{17}{2}$ C. $\frac{18}{2}$ D. $\frac{19}{2}$ E. None of the above

16. What is $1\frac{3}{4} + \frac{1}{8}$?

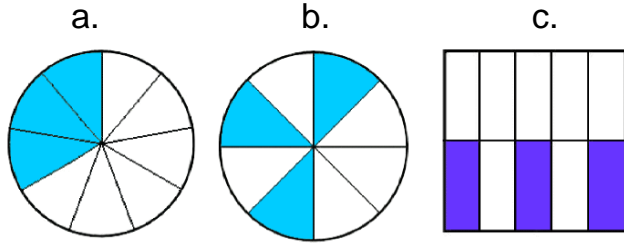
- A. $1\frac{7}{8}$ B. $1\frac{4}{12}$ C. $\frac{8}{12}$ D. $1\frac{1}{2}$ E. None of the above

17. If A = 0 and E = 2, then what is B?



- A. 0.3 B. 0.4 C. $\frac{3}{10}$ D. $\frac{3}{5}$ E. None of the above

18. Use the diagram to order the fractional area from **least to greatest**?



- A. a, b, c B. b, c, a C. c, a, b D. b, a, c E. None of the above

19. $8,000 - 1,997$

- A. 6,003 B. 6,113 C. 7,003 D. 7,113 E. None of the above

20. $2,453 + 1,997$

- A. 3,450 B. 4,450 C. 3,500 D. 4,500 E. None of the above

21. $\frac{1}{5} + \frac{3}{5} + \frac{3}{5}$

- A. $1\frac{3}{5}$ B. $1\frac{7}{10}$ C. $\frac{7}{15}$ D. $1\frac{2}{5}$ E. None of the above

22. $\frac{3}{8} \times \frac{4}{3}$

- A. $1\frac{1}{11}$ B. $\frac{1}{2}$ C. $1\frac{1}{3}$ D. $\frac{7}{11}$ E. None of the above

23. $6\frac{4}{5} - 3\frac{1}{5}$

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

24. $716 \div 3$

- A. 230 r 2 B. $208\frac{2}{3}$ C. $238\frac{1}{3}$ D. $238\frac{2}{3}$ E. None of the above

25. $2 + 2 \times 2 - 2 \times 2 + 2$

- A. 2 B. 4 C. 14 D. 6 E. None of the above

26. $84 - (11 + 23)$

- A. 96 B. 72 C. 118 D. 50 E. None of the above

27. $36 + 8 \div 2 - 4$

- A. 36 B. 18 C. 42 D. 22 E. None of the above

28. $2\frac{2}{5} \times \frac{1}{4}$

- A.
- $2\frac{1}{10}$
- B.
- $2\frac{3}{20}$
- C.
- $\frac{1}{5}$
- D.
- $\frac{3}{5}$
- E. None of the above

29. $700 \div 10$

- A. 7 B. 0.7 C. 70 D. 0.07 E. None of the above

30. $\$4.50 \div 0.25$

- A. 16 B. 17 C. 18 D. 19 E. None of the above

31. $\frac{5}{6} \times 18$

- A. 15 B.
- $\frac{1}{15}$
- C.
- $3\frac{5}{6}12$
- D. 20 E. None of the above

32. $786 + 9 + 434$

- A. 1,200 B. 1,227 C. 1,228 D. 1,129 E. None of the above

33. $\$5.67 + \1.88

- A. \$7.55 B. \$6.45 C. \$7.45 D. \$7.46 E. None of the above

34. What **change will the cashier give you** if you purchase 6 bananas at \$0.25 each, one package of gum for \$1.25, and bottled water for \$1.35. You give the cashier \$10.

- A. \$0.90 B. \$5.90 C. \$4.90 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.
$$\begin{array}{r} 35,298 \\ 4,702 \\ + 18,124 \\ \hline 58,124 \end{array}$$
- B.
$$\begin{array}{r} 31,200 \\ - 4,698 \\ \hline 26,002 \end{array}$$
- C.
$$\begin{array}{r} 78 \\ \times 21 \\ \hline 1,638 \end{array}$$
- D. $842 \div 4 = 210 \text{ r } 2$
- E. None of the above
-

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

- $$\begin{array}{r} \underline{a} \ 2 \ 9 \\ 8 \ \underline{b} \ 2 \\ 4 \ 3 \ \underline{c} \\ \hline \underline{d} \ 4 \ 0 \ 7 \end{array}$$
- A. $a = 1, b = 4, c = 6, d = 1$
- B. $a = 1, b = 5, c = 5, d = 2$
- C. $a = 1, b = 5, c = 6, d = 1$
- D. $a = 1, b = 4, c = 6, d = 2$
- E. None of the above
-

Determine the **closest estimate** for problems 37- 40.

37. 200×11.3 A. 20 B. 2,000 C. 2,200 D. 2,300
38. $795 \div 10$ A. 0.8 B. 80 C. 800 D. 8
39. $\left(14\frac{1}{6}\right) + \left(4\frac{9}{10}\right) - \left(2\frac{1}{12}\right)$ A. 17 B. 20 C. 21 D. 16
40. What is the **approximate cost** of taking a 500 mile trip if you get 25 miles per gallon of gas and the gas costs \$3.60 per gallon?
- A. \$18 B. \$90 C. \$102 D. \$72

Shade the correct answer!

Example: A ● C D E

Name _____

School _____

- 1. A B C D E
- 2. A B C D E
- 3. A B C D E
- 4. A B C D E
- 5. A B C D E
- 6. A B C D E
- 7. A B C D E
- 8. A B C D E
- 9. A B C D E
- 10. A B C D E
- 11. A B C D E
- 12. A B C D E
- 13. A B C D E
- 14. A B C D E
- 15. A B C D E
- 16. A B C D E
- 17. A B C D E
- 18. A B C D E
- 19. A B C D E
- 20. A B C D E

- 21. A B C D E
- 22. A B C D E
- 23. A B C D E
- 24. A B C D E
- 25. A B C D E
- 26. A B C D E
- 27. A B C D E
- 28. A B C D E
- 29. A B C D E
- 30. A B C D E
- 31. A B C D E
- 32. A B C D E
- 33. A B C D E
- 34. A B C D E
- 35. A B C D E
- 36. A B C D E
- 37. A B C D
- 38. A B C D
- 39. A B C D
- 40. A B C D

Shade the correct answer!

Example: A ● C D E

Name _____

School _____

ANSWER KEY

- 1. A B ● D E
- 2. A ● C D E
- 3. A ● C D E
- 4. A B C D ●
- 5. A B C ● E
- 6. A ● C D E
- 7. A B ● D E
- 8. A B C ● E
- 9. A B ● D E
- 10. ● B C D E
- 11. ● B C D E
- 12. A B C D ●
- 13. A B ● D E
- 14. A ● C D E
- 15. A B C ● E
- 16. ● B C D E
- 17. A B C ● E
- 18. A B ● D E
- 19. ● B C D E
- 20. A ● C D E

- 21. A B C ● E
- 22. A ● C D E
- 23. A B ● D E
- 24. A B C ● E
- 25. A ● C D E
- 26. A B C ● E
- 27. ● B C D E
- 28. A B C ● E
- 29. A B ● D E
- 30. A B ● D E
- 31. ● B C D E
- 32. A B C D ●
- 33. ● B C D E
- 34. A ● C D E
- 35. A ● C D E
- 36. ● B C D E
- 37. A ● C D
- 38. A ● C D
- 39. ● B C D
- 40. A B C ●