

Kansas City Area Teachers of Mathematics
2013 KCATM Math Competition

Numbers and Operations
GRADE 5

NO CALCULATOR

INSTRUCTIONS

- **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) not given
i.e. $3 + 4 =$ a) 4 b) 5 c) 6 d) 8 e) Not given
- If a division problem has a remainder (for instance $21 \div 5 = ??$), the answer is in this form: **4 r 1**. The answer may also be a decimal value.
- All fractions are expressed in lowest terms.
- All answers that are improper fractions are written as mixed numerals or whole numbers.

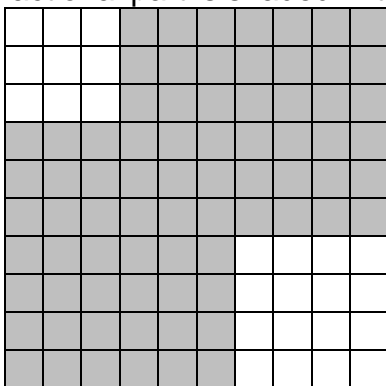
i.e. $\frac{4}{2}$ should be written as 2
 $\frac{7}{3}$ should be written as $2\frac{1}{3}$

Student Name _____ Student Number _____

School _____

1. Which number when divided by 3 has a remainder of zero?
 A. 143 B. 88 C. 614 D. 237 E. None of the above
2. If it takes 12 seconds to do each question on a test, how many problems can be done in 4 minutes?
 A. 10 B. 20 C. 30 D. 40 E. None of the above
3. Choose the most reasonable estimate for $59 \times 61 \times 200$.
 A. 720,000 B. 180,000 C. 72,000 D. 18,000 E. None of the above
4. Half-time work is 20 hours per week. If a person works half-time, **about how many hours of work** will the person work in one year? A year has 52 weeks.
 A. 1,000 B. 2,000 C. 5,200 D. 10,000 E. None of the above
5. John had to divide \$36.80 among four people. How much does each person get?
 A. \$8.20 B. \$9.20 C. \$9.40 D. \$8.40 E. None of the above
6. The number written as: $12 \times 1000 + 257 \times 10$ is represented by:
 A. 2457 B. 14,570 C. 120,257 D. 12,257 E. None of the above
7. Nine thousand is how many tens?
 A. 9 B. 90 C. 900 D. 9000 E. None of the above
8. The square root of 1,637 is between:
 A. 20 and 30 B. 30 and 40 C. 40 and 50 D. 50 and 60 E. None of the above
9. Evaluate: $14 - 3 \times 4 + 6$
 A. 50 B. 8 C. -16 D. -4 E. None of the above

10. What fractional part is shaded in the hundreds chart below?



- A. $\frac{3}{5}$ B. $\frac{4}{5}$
- C. $\frac{81}{100}$ D. $\frac{3}{4}$
- E. None of the above

11. Which of these numbers is divisible by 4?
 A. 9,433 B. 246,914 C. 56,754 D. 89,496 E. None of the above
12. Jamie babysat for $7 \frac{1}{2}$ hours. At \$5.25 per hour, what did Jamie get paid?
 A. \$36.75 B. \$39.00 C. \$35.25 D. \$38.38 E. None of the above

13. Your class wants to raise \$200 with a bake sale. You decide to make loaves of banana bread. Each loaf makes 7 slices, and each slice sells for \$0.25. How many loaves do you need?

- A. 114 B. 115 C. 113 D. 116 E. None of the above

14. Which fraction is the smallest? $\frac{4}{7}$, $\frac{3}{5}$, $\frac{2}{3}$, $\frac{5}{8}$

- A. $\frac{4}{7}$ B. $\frac{3}{5}$ C. $\frac{2}{3}$ D. $\frac{5}{8}$ E. None of the above

15. **950 x 20 =**

- A. 1,950 B. 19,950 C. 1,900 D. 19,000 E. None of the above

16. **450 + 30,000 + 2,000 + 690 + 50 =**

- A. 33,190 B. 32,940 C. 32,740 D. 33,740 E. None of the above

17. **25% of 84 =**

- A. 42 B. 28 C. 21 D. 17 E. None of the above

18. $\frac{2}{5} + 1\frac{2}{5} + \frac{3}{5} =$ *(Simplify your answer to a reduced mixed number.)*

- A. $2\frac{2}{5}$ B. $1\frac{4}{5}$ C. $2\frac{3}{5}$ D. $1\frac{7}{5}$ E. None of the above

19. $\frac{3}{4} \times 8 =$ A. 3 B. 6 C. $\frac{3}{32}$ D. $2\frac{1}{2}$ E. None of the above

20. **0.007 x 30 =**

- A. 21 B. 0.21 C. 0.021 D. 0.0021 E. None of the above

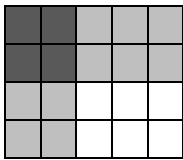
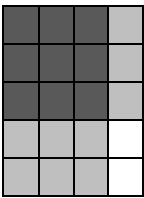
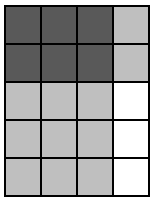
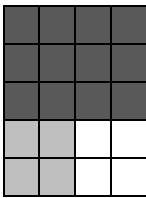
21. **1 ÷ 2 (6 x 3 - 4 x 2) + 7 =**

- A. 12 B. 8 C. 1 D. 21 E. None of the above

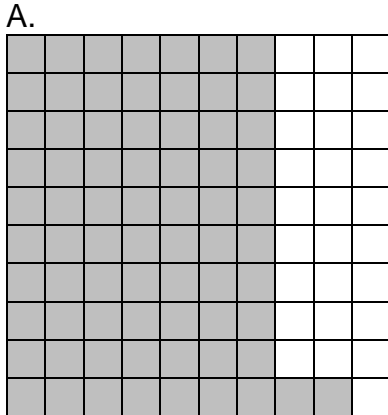
22. $2\overline{)5147}$ A. 25.75 B. 257.35 C. 2573.5 D. 257.50 E. None of the above

23. **0.2 x 0.5** A. 1 B. 0.1 C. 0.01 D. 0.001 E. None of the above

24. 3.76×10^4 A. 37.6 B. 0.000376 C. 3,760 D. 37,600 E. None of the above
25. $7\frac{5}{12} =$ A. $\frac{19}{12}$ B. $\frac{89}{12}$ C. $\frac{35}{12}$ D. $\frac{24}{12}$ E. None of the above
26. $107 \div 25$ A. 4 r 4 B. 5 r 7 C. 4 r 7 D. 5 r 2 E. None of the above
27. $(2\frac{4}{5}) \div (7)$ A. $\frac{2}{5}$ B. $\frac{4}{5}$ C. $\frac{8}{35}$ D. $11\frac{1}{5}$ E. None of the above
28. **50% of \$58 =** A. \$26 B. \$27 C. \$28 D. \$29 E. None of the above
29. What is the prime factorization of 72?
 A. $2^3 \times 3$ B. 2×6^2 C. $2^3 \times 3^2$ D. $2^4 \times 3^3$ E. None of the above
30. AJ wants to earn \$1,000 for a new stereo system. Select the rate and time frame below that AJ could use to save \$1000 he needed to buy the stereo system.
 A. 43 days at \$10.70 per day B. 100 days at \$8.40 per day
 C. 140 days at \$7.50 per day D. 210 days at \$4.25 per day
 E. None of the above
31. Find the selling price of a pair of basketball shoes that cost \$75 and then are marked up 20%.
 A. \$60 B. \$82.50 C. \$90 D. \$95 E. None of the above
32. **$2,000.2 + 20 + 20.20 =$**
 A. 2,220.2 B. 2,040.2 C. 2,000.42 D. 2,040.4 E. None of the above
33. Which of the two following numbers have a difference of 7.8?
 A. 15.6, 8.2 B. 7.8, 14.6 C. 14.8, 21.5 D. 24.6, 32.4 E. None of the above
34. What is the sum of the whole numbers from 1 to 100? $(1 + 2 + 3 + \dots + 98 + 99 + 100)$
 A. 5,050 B. 4,950 C. 1,999 D. 6,100 E. None of the above
35. Which figure shows the value of $\frac{2}{5} \times \frac{3}{4}$ in the **darkest** shaded region?

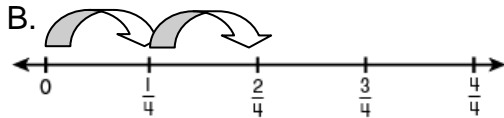
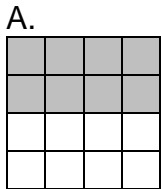
<p>A.</p> 	<p>B.</p> 	<p>C.</p> 	<p>D.</p> 	<p>E. None of the above</p>
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36. Which is **NOT** equivalent to 0.72?



- B. $\frac{7}{10} + \frac{2}{100}$ C. 0.720 D. $\frac{72}{1000}$
 E. All are correct

37. Which is **NOT** a way to represent $2 \times \frac{1}{4}$?



- C. $\frac{1}{4} + \frac{1}{4}$ D. $\frac{1}{8}$ E. All are correct

38. Round 7.235 to the nearest tenth.

- A. 7.23 B. 7.2 C. 7.3 D. 7.24 E. None of the above

In each of the next two questions, there are four calculations, of which one may be incorrect. Find the **incorrect calculation**, if any.

39. A.
$$\begin{array}{r} 1,437,945 \\ 654,774 \\ + 185,286 \\ \hline 2,277,005 \end{array}$$
 B.
$$\begin{array}{r} 31,000 \\ - 18,967 \\ \hline 13,143 \end{array}$$
 C.
$$\begin{array}{r} 250 \\ \times 300 \\ \hline 75,000 \end{array}$$
 D. $623 \div 7 = 89$
 E. All are correct.

40. A.
$$\begin{array}{r} \$35.05 \\ \$27.18 \\ \$47.21 \\ + \$19.84 \\ \hline \$129.28 \end{array}$$
 B.
$$\begin{array}{r} \$152.03 \\ - 133.58 \\ \hline \$ 18.45 \end{array}$$

 C. $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$ D. $\frac{1}{4}$ of 150 = 37.5 E. All are correct.

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

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