

Kansas City Area Teachers of Mathematics
2015 KCATM Math Competition

NUMBER SENSE
GRADE 6

NO CALCULATOR

INSTRUCTIONS

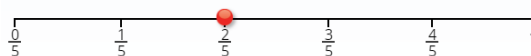
- **Do not open this booklet** until instructed to do so.
- Time limit: **20 minutes**
- You **may NOT use calculators** on this test.
- Some multiple-choice questions do not have the correct answer as one of the choices. On those questions, the response is E. None of the above
i.e. $3 + 4 =$ A. 4 B. 5 C. 6 D. 8 E. none of the above
- Reduce all fractions.
- Simplify improper fractions to 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. Find the value of $(3 \times 10^4) + (2 \times 10^2) + (4 \times 10)$.
- A. 324 B. 3024 C. 30240 D. 30204 E. None of the above
2. Hugh uses 13 grams of coffee powder to each liter of water. He has a cup that holds 0.33 liters of water. **How much coffee powder should he use?**
- A. $1/3$ g B. 13 g C. 39 g D. $4 \frac{1}{3}$ g E. None of the above
3. What number is **half way between -3 and 4** ?
- A. $1/2$ B. $-1/2$ C. 0 D. $3/4$ E. None of the above
4. You are using the calculator to answer the following question:
How many CDs, each costing \$6, can be bought for \$100?
 When you calculate $100 \div 6$ using a calculator, the result is 16.6666667. How many CDs can you buy?
- A. 16.6666667 B. 16.67 C. 16 D. 17 E. None of the above
5. Which expression has the **greatest value** when n is a $\frac{1}{2}$?
- A. $n - 2$ B. $2n$ C. $\frac{n}{2}$ D. $\frac{2}{n}$ E. None of the above
6. You have $\frac{2}{3}$ of a pie. You want to divide it into 2 pieces. What **fractional part** is each new piece?
- A. $1/3$ B. $1/2$ C. $1/6$ D. $5/6$ E. None of the above
7. **Evaluate** the expression using order of operations: $(2 - 3^2) + 7 \times 2 - 5(2)$
- A. -10 B. -3 C. 4 D. 8 E. None of the above
8. 75% of what number is 60?
- A. 15 B. 45 C. 90 D. 80 E. None of the above

9. The fraction $\frac{2}{5}$ is placed on the number line below. Which statement can you conclude using number sense with fractions?



- A. $\frac{2}{5} > \frac{1}{2}$ B. $\frac{2}{5} + \frac{2}{5} = 1$ C. There are 6 sections of $\frac{1}{5}$ in 1
 D. $5 \times \frac{1}{5} = 1$ E. None of the above

10. What is the greatest common factor (**GCF**) of 80 and 120?

- A. 10 B. 20 C. 40 D. 80 E. None of the above

11. Six people are planning on sharing 4 Hershey chocolate candy bars. **How many small rectangular pieces will each one get?**



- A. 6 B. 9 C. 12 D. 10 E. None of the above

12. Marlon has $1\frac{2}{3}$ cup of trail mix to take on a hike to share with his fellow hikers. He is packaging it to give each hiker $\frac{2}{9}$ of a cup of trail mix. How many hikers can he give full servings to?

- A. 4 B. 5 C. 7 D. 8 E. None of the above

13. The state of Hawaii has a population of approximately 1,375,000 and is approximately 6,400 square miles. What is the population density (**people per square mile**) of the state of Hawaii? (Round your answer to the nearest whole number.)

- A. 215 people per sq. mi. B. 224 people per sq. mi. C. 212 people per sq. mi.
D. 218 people per sq. mi. E. None of the above

14. Andrea baked two types of cookies for a class fundraiser: 42 peanut butter cookies and 36 chocolate chip cookies. You want to put the same amount in each bag that you will sell. Which of the following choices represents the largest **number of cookies that can be put in each bag**, if each bag contains the same amount, regardless of what type of cookie? *Sorry, there are no left over cookies to eat.* 😊

- A. 3 B. 4 C. 6 D. 8 E. None of the above

15. **Evaluate** the expression: $42 - (2 \times 3) \times (10 - 8) + 5$

- A. 77 B. 45 C. 245 D. 35 E. None of the above

16. What is the value of 2^7 ?

- A. 14 B. 128 C. 256 D. 512 E. None of the above

17. **Between** which two whole numbers is the $\sqrt{46}$?

- A. 5 and 6 B. 6 and 7 C. 7 and 8 D. 4 and 5 E. None of the above

18. Find: **(0.25)(0.09)**

- A. 0.0225 B. 0.00225 C. 0.225 D. 2.25 E. None of the above

19. What is the least common multiple (**LCM**) of 48 and 40 ?
- A. 8 B. 120 C. 240 D. 1920 E. None of the above
20. Thirty-three and a third percent of 60 is what number?
- A. 40 B. 20 C. 24 D. 15 E. None of the above
21. Solve: $4x^2 - 100 = 0$
- A. 25 B. 5 C. 5 and -5 D. 25 and -25 E. None of the above
22. Solve the inequality: $-3x + 7 < 16$
- A. $x < 3$ B. $x > 3$ C. $x < -3$ D. $x > -3$ E. None of the above
23. What is the value of $|-23|$?
- A. -23 B. 23 C. 1 D. -6 E. None of the above
24. You get **10% more off the price of an item** on clearance for every week it is on the shelf. If an item on Week 1 has a sale price of \$100, what would the sale price be on **Week 4**?
- A. \$60 B. \$70 C. \$72.90 D. \$60 E. None of the above
25. Evaluate: $100 \div 5^2 + 7 \cdot 3$
- A. 84 B. 46 C. 51 D. 25 E. None of the above
26. Evaluate: $0.58 \div 20$
- A. 11.6 B. -19.42 C. 0.029 D. 0.29 E. None of the above
27. Find the **product**: $\left(\frac{2}{9}\right) \times \left(\frac{5}{8}\right) \times \left(1\frac{1}{2}\right)$
- A. $\frac{10}{19}$ B. $1\frac{8}{19}$ C. $\frac{1}{10}$ D. $\frac{5}{24}$ E. None of the above
28. Add the following decimals: $1.34 + 2.6 + 5.973$
- A. 6.033 B. 9.913 C. 8.873 D. 9.823 E. None of the above
29. If it takes 7 hours to mow 4 lawns, **how many lawns can be mowed in 35 hours**?
- A. 5 B. 7 C. 20 D. 35 E. None of the above

30. Find the value of $5x^3 + 4y^2 - 3x^2 - 6y$ when $x = 2$ and $y = -3$
- A. 82 B. 10 C. 30 D. 0 E. None of the above
31. Find the number of **centimeters** in 3 ft. if the ratio is 1 in. = 2.54 cm.
- A. 7.62 B. 91.44 C. 4.72 D. 10.16 E. None of the above
32. Advertised prices at a store for apples and oranges are: 3 lbs. of apples for \$3.60, and 5 lbs. of oranges for \$5.00. Find the **total cost** of buying 7 lbs. of apples and 3 lbs. of oranges at those prices.
- A. \$15.80 B. \$13.80 C. \$11.40 D. \$25.80 E. None of the above
33. What is the **next number** in the pattern? -15, -23, -31, -39, ____
- A. -42 B. -46 C. -47 D. -48 E. None of the above
34. Find the value: $36\frac{1}{2} - (6 \div \frac{1}{2})$
- A. $15\frac{1}{4}$ B. $30\frac{1}{2}$ C. $24\frac{1}{2}$ D. $14\frac{1}{2}$ E. None of the above
35. To the nearest tenth of a percent, what is the percent of increase of the cost of gasoline per gallon when it went from \$1.75 up to \$2.35?
- A. 11.1% B. 74.5% C. 25.5% D. 34.3% E. None of the above
36. What is half of a half of a half?
- A. $\frac{1}{2}$ B. $\frac{1}{8}$ C. $\frac{1}{16}$ D. 1 E. None of the above
37. Mom drives 4 hours at 60 mph on the interstate, then dad drives 6 hours at 70 mph. What is the average mph for the total number of hours they drive?
- A. 62 mph B. 63 mph C. 64 mph D. 66 mph E. None of the above
38. Simplify completely: $5\sqrt{48}$
- A. $10\sqrt{12}$ B. $20\sqrt{3}$ C. $40\sqrt{2}$ D. $9\sqrt{3}$ E. None of the above
- E. None of the above
39. Solve: $x^2 - 5x - 6 = 0$
- A. 3, -2 B. -3, 2 C. -1, 6 D. 1, -6 E. None of the above
40. Simplify: $\frac{-2^3 + \sqrt{6}^2}{2^0}$
- A. -2 B. undefined C. 7 D. -1 E. None of the above

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 – 3.19.15 JH

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

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