

Kansas City Area Teachers of Mathematics
2017 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 _____

Mental Math:

1. 15×50 A. 505 B. 750 C. 525 D. 650 E. None of the above
2. $2.8 + 1.9$ A. 4.7 B. 20.9 C. 3.7 D. 1.1 E. None of the above
3. $7,003 - 2,925$ A. 5,078 B. 4,078 C. 4,922 D. 5,922 E. None of the above
4. 50% of 1254 A. 625 B. 622 C. 6,270 D. 6,220 E. None of the above
5. $3 \div 25$ A. $8.\bar{3}$ B. 0.0325 C. 0.012 D. 0.12 E. None of the above
6. $\frac{1}{4} \times 1\frac{3}{4}$ A. $\frac{3}{4}$ B. $\frac{7}{16}$ C. $1\frac{3}{4}$ D. $\frac{1}{3}$ E. None of the above
7. $1 \div 7$ A. 0.143 B. $0.\overline{14294}$ C. $0.\overline{142858}$ D. $0.\overline{14294}$ E. None of the above
8. 4^4 A. 16 B. 64 C. 256 D. 1024 E. None of the above
9. $104\frac{1}{4} - 96\frac{2}{3}$ A. $200\frac{11}{12}$ B. $7\frac{7}{12}$ C. $8\frac{7}{12}$ D. 9 E. None of the above
10. $-884 - (-259)$ A. -625 B. 625 C. -1,143 D. 1,143 E. None of the above
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11. Evaluate $20 \div 4 - 6 \times 3$
- A. -3 B. -13 C. -30 D. $\frac{10}{7}$ E. None of the above
12. $5\frac{1}{4}$ cups of baking soda were used for class experiments. Each experiment took $\frac{3}{4}$ cup. How many experiments were conducted?
- A. 5 B. 6 C. 7 D. 8 E. None of the above
13. The owner of a flower shop sold 20 long stem roses for \$90. What was the cost per rose?
- A. \$4.25 B. \$4.50 C. \$4.75 D. \$5.25 E. None of the above
14. What is 35% of 20?
- A. 7 B. 20.35 C. 57 D. 9.5 E. None of the above
15. What are the next 2 terms in the sequence: 88, 79, 71, 64, 58, ____, ____
- A. 53, 49 B. 53, 50 C. 53, 48 D. 52, 47 E. None of the above

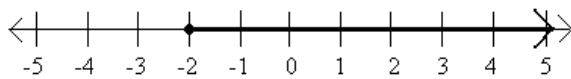
16. The present time is 9am. What time will it be 3,600 seconds from now?
- A. 10am B. 10:30am C. 11:00am D. 12pm E. None of the above
17. Use the clues to find the smallest number that N can be:
- N is a Natural number.
 - N is divisible by 3 and 5.
 - When N is divided by 7, a remainder of 4 is left.
- A. 15 B. 60 C. 75 D. 90 E. None of the above
18. Find the value of $(1 \times 10^4) + (7 \times 10^3) + (4 \times 10^1)$
- A. 1,740 B. 17,004 C. 17,040 D. 17,400 E. None of the above
19. Evaluate $16 \div 2^3 + \frac{37-1}{9}$
- A. $1 \frac{1}{4}$ B. 5 C. 8 D. 6 E. None of the above
20. Which expression is **NOT** equal to 6?
- A. $24 \div (2 + 2) \times 1$ B. $(12 \div 2) + (12 \times 0)$ C. $(24 \div 2 \div 2)$
D. $16 \div (2 + 2) + 2$ E. None of the above
21. If you have 4 pennies, 3 nickels, and 2 quarters, what is the lowest purchase price for which you do **NOT** have the exact amount?
- A. \$0.75 B. \$0.70 C. \$0.30 D. \$0.01 E. None of the above
22. What is the area of a square whose perimeter is 24 meters?
- A. 16m^2 B. 64m^2 C. 4m^2 D. 36m^2 E. None of the above
23. You have a 20% off coupon one item at Dick's Sporting Goods. How much would a \$65 Nike sweatshirt cost if you use the coupon?
- A. \$15 B. \$52 C. \$45 D. \$13 E. None of the above
24. What is $\frac{1}{2}$ of $\frac{1}{2}$ of 8?
- A. 1 B. 6 C. 4 D. 2 E. None of the above
25. Simplify: $57 \div 3 + (-1 - \sqrt{25})$
- A. 13 B. 39 C. 22 D. -19 E. None of the above

26. Evaluate this expression: $\frac{8^2+2 \times 4}{11-2}$
- A. 7 B. 8 C. 9 D. 11 E. None of the above
27. $\sqrt{32}$ is between which 2 integers?
- A. 4 and 5 B. 5 and 6 C. 6 and 7 D. 7 and 8 E. None of the above
28. What number is **half way between -22 and 14**?
- A. -6 B. -4 C. 0 D. -2 E. None of the above

For problems #29-32, use the same two fractions to evaluate each operation.

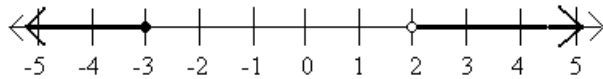
29. $\frac{3}{4} + \frac{1}{6} =$
- A. $\frac{4}{10}$ B. $\frac{2}{5}$ C. $\frac{11}{12}$ D. $\frac{5}{6}$ E. None of the above
30. $\frac{3}{4} - \frac{1}{6} =$
- A. $\frac{7}{12}$ B. $\frac{2}{10}$ C. $\frac{1}{2}$ D. -1 E. None of the above
31. $\frac{3}{4} \times \frac{1}{6} =$
- A. $4\frac{1}{2}$ B. $\frac{3}{20}$ C. $\frac{1}{8}$ D. $\frac{2}{5}$ E. None of the above
32. $\frac{3}{4} \div \frac{1}{6} =$
- A. -1 B. $\frac{10}{3}$ C. $-\frac{1}{2}$ D. $4\frac{1}{2}$ E. None of the above

33. Which **inequality is graphed** at the right?



- A. $x \leq -2$ B. $x < -2$ C. $x \geq -2$ D. $x > -2$ E. None of the above

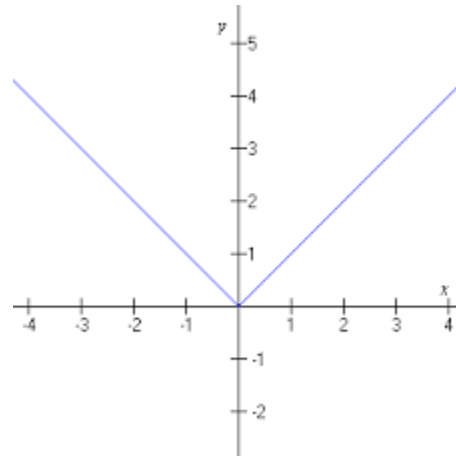
34. Which **inequality** is graphed at the right?



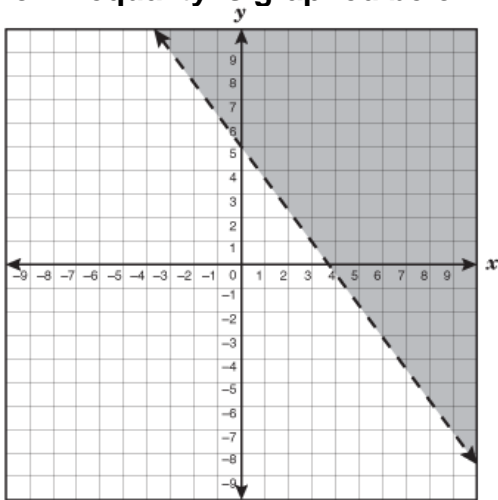
- A. $x < -3$ or $x > 2$ B. $-3 \leq x < 2$ C. $x \geq -3$ D. $x \leq -3$ or $x > 2$ E. None of the above

35. Which **equation** is graphed on the right?

- A. $y = 1x + 0$
 B. $y = -1x + 0$
 C. $y = |x|$
 D. $y \geq 0$
 E. None of the above



36. Which **inequality** is graphed below?



- A. $y < -\frac{5}{4}x + 5$ B. $y > -\frac{5}{4}x + 5$
 B. $y \leq -\frac{5}{4}x + 5$ D. $y \geq -\frac{5}{4}x + 5$
 E. None of the above

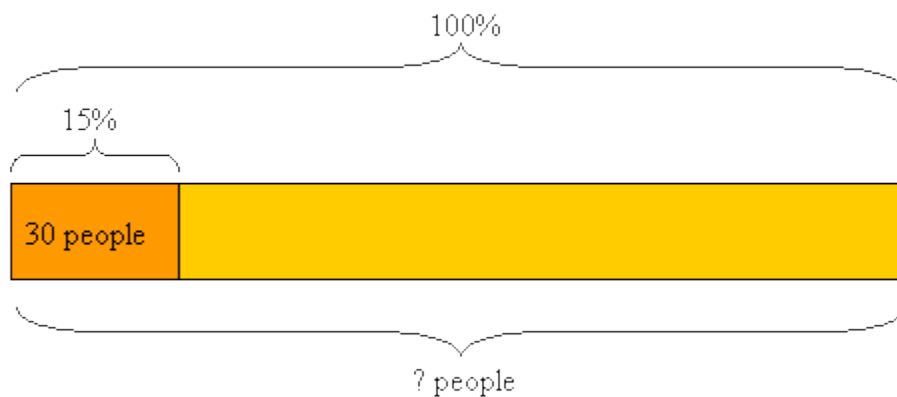
37. What is the difference in annual precipitation in Middleton and River Valley?

Annual Precipitation

| Town Name | Precipitation (inches) |
|--------------|------------------------|
| Cedar Falls | 15.68 |
| River Valley | 16.43 |
| Middleton | 18.37 |
| Hill City | 21.45 |

- A. 0.75 inches
 B. 1.94 inches
 C. 3.09 inches
 D. 2.69 inches
 E. None of the above

38. If the tape diagram for percent problems is used below, what would the ? be?



- A. 75 B. 100 C. 150 D. 200 E. None of the above

39. The ratio of boys to girls in at the KCATM math contest is 5:6. If there are 300 girls, **how many boys are taking math tests at KCATM?**

- A. 360 B. 150 C. 200 D. 250 E. None of the above

40. Solve the inequality: $-3(x + 5) < 18$

- A. $x < -11$ B. $x < 11$ C. $x > -11$ D. $x > 11$ E. None of the above