Kansas City Area Teachers of Mathematics
2012 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) not given
    i.e.   3 + 4 =   a) 4   b) 5   c) 6   d) 8   e) not given

- All fractions are expressed in lowest terms.

- All answers that are improper fractions are written as mixed numerals or whole numbers.
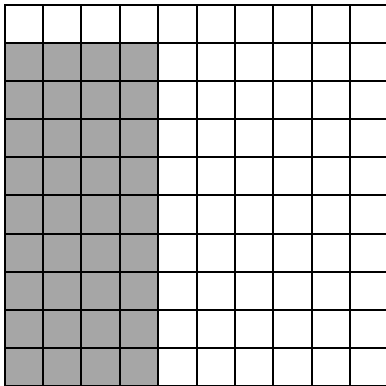   i.e. $\frac{4}{2}$ should be written as 2
    $\frac{7}{3}$ should be written as $2\frac{1}{3}$

Student Name _____ Student Number _____

School _____

1. What is the **unit price** of a mechanical pencil if a package of 5 pencils costs $3.45?
   A. $0.75   B. $0.69   C. $0.71   D. $0.68   E. None of the above

2. Write   82,340 in **scientific notation**.
   A. 8.234×10^2 B. 8.234×10^3 C. 8.234×10^4 D. 8.234×10^5 E. None of the above

3. Which number is represented by: **three thousand five hundred one and five thousandths**
   A. 3,051.5   B. 3,501.05   C. 3,510.005   D. 3,501.005   E. None of the above

4. On a map, the scale reads ½ " = 50 miles. If you know that Kansas is approximately 400 miles from east to west, what would the **distance** be on the map using the scale?
   A. 25"   B. 10"   C. 8"   D. 4"   E. None of the above

5. Order the following numbers from **largest to smallest**:   0.36   2.13   -1.2
   A. 0.36 < -1.2 < 2.13   B. -1.2 < 0.36 < 2.13
   C. 2.13 > 0.36 > -1.2   D. 2.13 > -1.2 > 0.36   E. None of the above
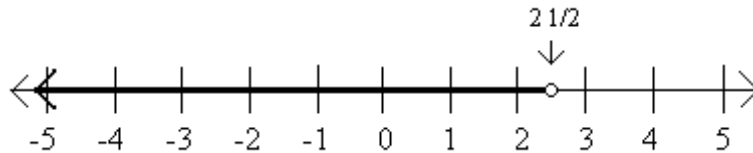
6. Give the **decimal value** shown in the unit square:

   A. 0.36
   B. 0.4
   C. 0.38
   D. 0.32
   E. None of the above

7. You see a sale at abercrombie that is 20% off one item. The jeans you want to buy are regularly $72. **How much would they cost** if you got the 20% discount?
   A. $65.80   B. $57.60   C. $70   D. $52   E. None of the above

8. Which **inequality** shows the   21/2   graph
   on the number line:

   A. n < 2.5   B. n > 2.5   C. n < 2.25   D. n > 2.25   E. None of the above

9. Given the following Roman numeral values, what is the **Roman numeral** for: 1,208?

I	V	X	L	C	D	M
1	5	10	50	100	500	1,000

   A. MCVIII
   B. DDCCIIIV
   C. MCCVIII
   D. MCCCDVIII
   E. None of the above

10. **13 x 13 =**   A. 190   B. 26   C. 169   D. 260   E. None of the above

11. **$34.91 - $14.08 =** A. $19.83   B. $20.99   C. $20.83   D. $19.11   E. None of the above

12. **0.05 x 10 =**   A. 5   B. 0.5   C. 0.005   D. 0.05   E. None of the above

13. **1/2 - 1/3 =**   A. 1   B. 0   C. 1/3   D. 1/6   E. None of the above

14. **2.5 – 1 ¼ =**   A. 1.25   B. 1 ¾   C. 3 ¾   D. 1.11   E. None of the above

15. **10% of $900 =**   A. $10   B. $90   C. $9   D. $18   E. None of the above

16. **0.25 x 400 =**   A. 80   B. 100   C. 425   D. 160   E. None of the above

17. **80 x 80 =**   A. 800   B. 160   C. 1600   D. 16000   E. None of the above

18. **(-3) x (-5) =**   A. 15   B. -15   C. -8   D. 8   E. None of the above

19. $3\frac{3}{4}+1\frac{5}{8}=$ A. $4\frac{8}{12}$ B. $4\frac{2}{3}$ C. $4\frac{3}{8}$ D. $5\frac{3}{8}$ E. None of the above

20. **12 – (-3) + 2 =**   A. 11   B. 38   C. 17   D. 10   E. None of the above

21. **– 18 – 13 =**   A. -31   B. -5   C. 5   D. 31   E. None of the above

22. **(½)³ =**   A. 1/6   B. ½   C. ¼   D. 1/8   E. None of the above

23. **– 3/10 + 9 =**   A. 9.3   B. 9.31   C. 8.7   D. 8.07   E. None of the above

24. **(4)⁰ =**   A. 4   B. 1   C. 0   D. -4   E. None of the above

25. $6\overline{)96{,}354}$ A. 16,509   B. 15,059   C. 15,959   D. 16,059   E. None of the above

26. **5 – 2 x (-7) + 1**   A. 20   B. -20   C. -8   D. 18   E. None of the above

For questions #27-31 choose the closest estimate to the answer for each problem.

27. **386 x 98**   A. 4×10^2 B. 4×10^3 C. 4×10^4 D. 4×10^5 E. 4×10^0

28. $24 - 13\frac{5}{6} + 2\frac{1}{9}$ A. 12   B. 13   C. 14   D. 15   E. 9

29. **7,024.19 – 99.99**   A. 6,800   B. 6,900   C. 7,000   D. 7,000   E. 6,700

30. $6.9\overline{)5000}$ A. 700   B. 70   C. 600   D. 800   E. 80

31. **39 x $2.89**   A. $120   B. $90   C. $12   D. $13   E. $140

#32-33: Write the next number in the sequence:

32. 1, 4, 9, 16, …   A. 19   B. 20   C. 23   D. 25   E. None of the above

33. 400, 100, 25, …   A. 12   B. 12.5   C. 6.25   D. 6   E. None of the above

For questions #34-35, there are four problems that have been worked. One of the problems on each question has an incorrect answer. Identify the problem that has the incorrect answer. *Hint:* Use estimation to quickly **identify the incorrect answer**.

34.   A.   617,222   B.   88,674   C.   87   D. $7,276 \div 5 = 1,455.2$
            534,199   - 29,299   x 78
         + 233,545   59,375   6,785   E.   None of the above
           1,384,966

35.   A. $69.054 + 1.98 = 71.034$ B. $\left(\frac{1}{2}\right)\left(\frac{1}{2}\right)\left(\frac{3}{4}\right)(8) = 1\frac{1}{2}$ C. $-3 - (-12) + (-4) = 5$

     D. $2\frac{4}{5} + 3\frac{5}{6} = 5\frac{9}{11}$ E.   None of the above

36. What is the greatest common factor (GCF) of 48 and 64?
     A.   16   B.   4   C. 8   D.   3072   E. None of the above

37. Which symbol compares: -4.5 _____ -4.4
     A.   <   B.   >   E. None of the above

38. What is the absolute value: $|17|$ =
     A.   17   B.   -17   C.   34   D.   -34   E. None of the above

39. What is the value of the square root: $\sqrt{225}$?
     A.   13   B.   15   C. 17   D.   19   E. None of the above

40. What is the least common multiple (LCM) of 6, 4, and 9?
     A.   144   B. 36   C. 216   D. 1   E. None of the above

Shade the correct answer!

Example: A   ●   C   D   E

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