

Kansas City Area Teachers of Mathematics  
2011 KCATM Math Competition

**NUMBER SENSE  
GRADE 6**

**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
- 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  $2\frac{1}{3}$

1.  $15 \times 15 =$  a) 175 b) 225 c) 275 d) 250 e) not given
2.  $8764.5 + 17.5 =$  a) 8781.5 b) 8781 c) 8782 d) 8782.5 e) not given
3.  $\$16.75 - \$9.37 =$  a) \$8.48 b) \$7.28 c) \$8.38 d) \$7.38 e) not given
4.  $82 \div 8 =$  a) 10.2 b) 10.25 c) 10.5 d) 10.75 e) not given
5.  $28 + 14 - 23 =$  a) 17 b) 19 c) 65 d) 55 e) not given
6.  $875 + 225 + 875 =$  a) 1775 b) 1875 c) 1975 d) 2075 e) not given
7.  $73.62 + 27.042 =$  a) 110.64 b) 101.04 c) 101.104 d) 100.662 e) not given
8.  $\$8.40 / 3 =$  a) \$1.80 b) \$2.80 c) \$2.13 d) \$1.97 e) not given
9.  $20 \frac{1}{3} - 16 \frac{1}{6} =$  a) 4 b)  $4 \frac{1}{6}$  c)  $4 \frac{1}{3}$  d)  $4 \frac{2}{9}$  e) not given
10.  $\left(\frac{5}{8}\right)\left(\frac{1}{10}\right) =$  a)  $\frac{1}{16}$  b)  $\frac{5}{18}$  c)  $\frac{1}{3}$  d)  $6 \frac{1}{4}$  e) not given
11.  $\left(\frac{3}{4}\right) \div \left(\frac{1}{2}\right) =$  a)  $\frac{3}{8}$  b)  $1\frac{1}{2}$  c)  $\frac{3}{4}$  d)  $\frac{1}{4}$  e) not given
12.  $3[4(2 + 8) - 1] =$  a) 119 b) 45 c) 117 d) 108 e) not given
13.  $2^3 - 5 + 9$  a) 10 b) -6 c) 20 d) 12 e) not given
14.  $2\frac{1}{2} - 1\frac{3}{4}$  a)  $\frac{3}{4}$  b)  $\frac{1}{2}$  c)  $\frac{3}{8}$  d)  $\frac{1}{4}$  e) not given
15. 25% of 144 a) 6 b) 12 c) 36 d) 72 e) not given

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16.  $5^2 + 8 - (3)(2) =$  a) 11 b) 27 c) 12 d) 40 e) not given
17. Find the 15% tip on a restaurant bill of \$25.  
a) \$3.75 b) \$5.00 c) \$4.25 d) \$4.00 e) not given
18. What property is used:  $2(x + 3) = 2x + 6$   
a) reflexive b) commutative c) associative d) distributive e) not given
19. Find the sale price of a \$40 jeans marked down 20%.  
a) \$32 b) \$20 c) \$38 d) \$30 e) not given
20.  $\frac{2}{5}$  of 40 = a) 8 b) 16 c) 20 d) 24 e) not given
21.  $625 \div 20 =$  a) 31 r 2 b) 30 r 5 c) 30 r 15 d) 31 r 5 e) not given
22.  $\sqrt{121}$  a) 10 b) 11 c) 12 d) 13 e) not given
23. A "Buy One Get One Free" sale is the same as what % savings on both items?  
a) 33% b) 25% c) 50% d) 75% e) not given
24. Find the total cost: Printer: \$109, Black ink: \$39, Color ink: 3 colors at \$8.25 each  
a) \$172.25 b) \$172.75 c) \$156.25 d) \$164.50 e) not given
25. How many different ways can the letters in the word "dog" be rearranged?  
a) 3 b) 4 c) 6 d) 12 e) not given
26. You have 4 pair of jeans, 2 pair of shoes, 10 t-shirts, and 4 sweatshirts. How many different outfits can you make?  
a) 20 b) 160 c) 320 d) 200 e) not given

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

27.  $278 \times 62 =$  a)180 b)1,800 c)18,000 d) 180,000 e) 1,800,000
28.  $7\frac{12}{13} + \frac{99}{100} - 2\frac{1}{37}$  a) 6 b) 7 c) 8 d) 9 e) 10
29.  $3.05 \times 497.376 =$  a) 1.5 b) 150 c) 1,500 d) 15,000 e) 150,000
30.  $9.8 \overline{)7100}$  a) 7 b) 7.1 c) 71 d) 710 e) 7,100
31.  $\$8.79 + \$0.98 + \$15.03 =$  a) \$24 b)\$25 c) \$26 d) \$27 e) \$28

#32-35: Write the next number in the sequence:

32. 21, 15, 9, 3, ...      a) 0      b) -1      c) -2      d) -3      e) not given
33. 1, -4, 9, -16, ...      a) 25      b) 32      c) 28      d) 36      e) not given
34. 2, 4, 8, 16, ...      a) 25      b) 32      c) 28      d) 36      e) not given
35.  $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \dots$       a)  $\frac{6}{7}$       b)  $\frac{7}{8}$       c)  $\frac{8}{9}$       d)  $\frac{4}{6}$       e) not given

For questions #36-38, 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**.

36. a) 
$$\begin{array}{r} 524,698 \\ 357,894 \\ + 123,456 \\ \hline 1,000,048 \end{array}$$
      b) 
$$\begin{array}{r} 86,591 \\ - 38,214 \\ \hline 48,377 \end{array}$$
      c) 
$$\begin{array}{r} 78 \\ \times 56 \\ \hline 4368 \end{array}$$
      d)  $58 \div 6 = 9 \frac{2}{3}$   
e) not given
37. a) 
$$\begin{array}{r} 69,254 \\ + 9,745 \\ \hline 78,999 \end{array}$$
      b) 
$$\begin{array}{r} 245,321 \\ - 75,413 \\ \hline 169,908 \end{array}$$
      c) 
$$\begin{array}{r} 37 \\ \times 62 \\ \hline 2584 \end{array}$$
      d)  $654 \div 5 = 130 \text{ r } 4$   
e) not given
38. a) 
$$\begin{array}{r} 89,895 \\ + 911,103 \\ \hline 1,091,098 \end{array}$$
      b) 
$$\begin{array}{r} 90,230 \\ - 89,952 \\ \hline 278 \end{array}$$
      c) 
$$\begin{array}{r} 399 \\ \times 5 \\ \hline 1995 \end{array}$$
      d)  $242 \div 3 = 80 \frac{2}{3}$   
e) not given

39.  $\frac{5}{6} + 5\frac{1}{3} + 1\frac{1}{2}$

- a)  $7\frac{1}{3}$       b)  $7\frac{2}{3}$       c)  $7\frac{1}{6}$       d)  $6\frac{7}{11}$       e) not given

40. Find the score you need to earn a B or 80% mean (average) when your first two test scores are 77% and 81%.

- a) 80%      b) 81%      c) 82%      d) 83%      e) not given