



Chapter

1



Number Sense

—in Competition—



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Example 1

(2013-JMC-2) What is the value of $((1 - 1) - 1) - (1 - (1 - 1))$?

A -2

B -1

C 0

D 1

E 2

Example 2

(2004-JMC-6) Which of these fractions is nearest to 1?

A $\frac{12}{23}$

B $\frac{23}{34}$

C $\frac{34}{45}$

D $\frac{45}{56}$

E 56



Example 3

(2004-JMC-22) The digits in the product $13 \times 2 = 26$ can be rearranged to give $16 \times 2 = 32$ as well as $31 \times 2 = 62$. In which one of the following can the digits not be rearranged to give another correct product?

A $12 \times 3 = 36$ B $12 \times 7 = 84$ C $26 \times 3 = 78$ D $16 \times 3 = 48$ E $39 \times 2 = 78$

Example 4

(2015-JMC-18) Each of the fractions $\frac{2637}{18459}$ and $\frac{5274}{36918}$ uses the digits 1 to 9 exactly once. The first fraction simplifies to $\frac{1}{7}$. What is the simplified form of the second fraction?

A $\frac{1}{8}$

B $\frac{1}{7}$

C $\frac{5}{34}$

D $\frac{9}{61}$

E $\frac{2}{7}$

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Example 5

(2013-AMC8-3) What is the value of $4(-1 + 2 - 3 + 4 - 5 + 6 - 7 + \cdots + 1000)$?

Practice I

(2004-JMC-2) Which of the following numbers is exactly divisible by 7?

A 104

B 106

C 108

D 110

E 112



Practice 2

(2013-AMC8-15) If $3^p + 3^4 = 90$, $2^r + 44 = 76$, and $5^3 + 6^s = 1421$, what is the product of p , r , and s ?

- (A) 27 (B) 40 (C) 50 (D) 70 (E) 90

Practice 3

(2010-AMC8-2) If $a@b = \frac{a \times b}{a+b}$ for a, b positive integers, then what is $5@10$?

- (A) $\frac{3}{10}$ (B) 1 (C) 2 (D) $\frac{10}{3}$ (E) 50



Homework 1

(2005-JMC-1) The value of $1000 - 100 + 10 - 1$ is:

- A 111 B 900 C 909 D 990 E 999

Homework 2

(2015-JMC-3) What is the value of $\frac{12345}{1+2+3+4+5}$?

- A 1 B 8 C 678 D 823 E 12359



Homework 3

(2005-JMC-15) Which one of these calculations is incorrect?

A $4 \times 5 + 67 = 45 + 6 \times 7$

B $3 \times 7 + 48 = 37 + 4 \times 8$

C $6 \times 3 + 85 = 63 + 8 \times 5$

D $2 \times 5 + 69 = 25 + 6 \times 9$

E $9 \times 6 + 73 = 96 + 7 \times 3$

Homework 4

(2004-JMC-17) Exactly one of these statements is correct. Which one?

A $44^2 + 77^2 = 4477$

B $55^2 + 66^2 = 5566$

C $66^2 + 55^2 = 6655$

D $88^2 + 33^2 = 8833$

E $99^2 + 22^2 = 9922$

Homework 5

(2008-AMC8-7) If $\frac{3}{5} = \frac{M}{45} = \frac{60}{N}$, what is $M + N$?

- (A) 27 (B) 29 (C) 45 (D) 105 (E) 127

Homework 6

(JMC-2016-8) What is the value of $\frac{2+4+6+8+10+12+14+16+18+20}{1+2+3+4+5+6+7+8+9+10}$?



Homework 7 (Challenge)

(JMC-2018-11) How many digits are there in the correct answer to the calculation $123\ 123\ 123\ 123 \div 123$?

A 4

B 6

C 8

D 10

E 12

Homework 8 (Challenge)

(JMC-2018-10) Adding four of the five fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{6}, \frac{1}{9}$ and $\frac{1}{18}$ gives a total of 1.

Which of the fractions is not used?

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Homework 9 (Revision)

Solve for x :

① $5x + \frac{7}{9} = 3$

② $\frac{x}{5} = 9 - 3x$

Homework 10 (Revision)

Solve for x .

① $3x - 4 = 2x + 6$

② $14 - 3(2 + x) = x$

