

Skyview Invitational Games for Mathematical Achievement  
Mental Math – 2006-2007 ROUND 1 KEY

Name \_\_\_\_\_

Correct \_\_\_\_\_ x5= \_\_\_\_\_  
Skipped \_\_\_\_\_ x1= \_\_\_\_\_  
Score: \_\_\_\_\_  
Verify: \_\_\_\_\_

Division (circle one)    Mu    Alpha    Theta

**DO NOT UNFOLD THIS SHEET  
UNTIL TOLD TO BEGIN**

**Directions:** Do not turn this page until the proctor gives the signal to begin. **This is an 8 minute test with 40 problems.** ALL PROBLEMS MUST BE SOLVED MENTALLY. No calculations with pen and paper may be made. Write ONLY THE ANSWER in the space provided. No erasures may be made to an answer once written. Use a pen with blue or black ink. All problems require exact answers. Fractional answers may be given as improper fractions, mixed numbers, or exact decimals unless otherwise specified.

You will receive 5 points for every correct answer, 1 points for each question skipped, and 0 points for each incorrect question. Proceed accurately and quickly.

**Stop. Wait for signal to begin**

1) $39^2$	1521	22) What is the sum of the solutions to $x^2+3x-5=0$ ?
2) $74*13 + 26*13$	1300	-3
3) $11^3$	1331	23) Find the sum of the first 4 triangular numbers:
4) $\log_{27} * \log_{498} =$ (decimal)	1.5	20
5) median of 16, 12, 18, 10, 19?	16	24) How many min are in 3 days?
6) $200611 =$	2668	4320
7) 992	9801	25) Compute $8C3$
8) Smallest prime greater than 1000?	1009	56
9) The GCD of 60 and 72 is?	12	26) Which is larger, $\frac{11}{13}$ or $\frac{23}{25}$ ?
10) The LCM of 60 and 72 is?	360	23/25
11) $2006*5 - 41 =$	9989	27) $\log_7 729 = 3$ . $z = ?$
12) $(61*52) \equiv x \pmod{3}$ . What is the smallest positive value for x?	1	9
13) $\overline{0.200620062006} =$ (frac) 2006/9999		28) $237 - 732 =$
14) MDCCLXXVI+CCXXX = (Roman numeral)	MMVI	-495
15) $\frac{1}{15}$ as a percentage (Mix Num)	$6\frac{2}{3}$	29) 15% of 2006 (decimal)
16) Gasoline once cost \$0.78/gal. At 20 miles/gal, How much does it cost to go 110 miles? \$4.29		300.9
17) If $x^2-y^2=7$ ; $x^2+y^2=43$ ; $ y =?$	$3\sqrt{2}$	30) S=2, I=3, G=7, M=2, A=2;
18) $16*16\frac{15}{16} =$	271	336
19) Mean of first 4 digits of e (dec)	4.5	31) $104 * 96 =$
20) $17+26+31+11 =$	85	9984
21) Simplify: $\sqrt{59x+9x}$	$2\sqrt{17x}$	32) $2006 / 9$ (mixed number)
		$222\frac{8}{9}$
		33) $4\frac{1}{4} \div 1\frac{2}{3}$ (improper fraction)
		51/20
		34) Slope through (1,2) & (200,6)
		4/199
		35) Mean 21, 22, 27, 29 (Mix Num)
		$24\frac{3}{4}$
		36) Y intercept of $y = x^2-4x+4$
		(0, 4)
		37) If $3 - 4x > 27$ ,
		$x < -6$
		-
		38) 4th term in geometric sequence with first term 7 and common ratio $\frac{2}{7}$ ?
		8/49
		39) Sum of the squares of the solutions to $x^2+9x+18=0$ ?
		45
		40) How many positive odd numbers are less than 2006?
		1003