

Skyview Invitational Games for Mathematical Achievement
Mental Math – 2006-2007 ROUND 2 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) 65^2	4225	_____	22) $\prod_{j=1}^4 2^j$	1024	_____
2) Convert 75_{10} to base 2	1001011	_____2	23) third pentagonal number?	11	_____
3) Which is smaller, $\frac{19}{32}$ or $\frac{11}{19}$?	11/19	_____	24) seconds in 5 hours?	18000	_____
4) If you have 33 gallons and travel at 17 miles per gallon, miles do you travel?	561	_____mi	25) Compute ${}_9C_4$	126	_____
5) $10\frac{3}{4} \times 4\frac{3}{8}$ (Mixed Number)	47 $\frac{1}{32}$	_____	26) $12 * 103$	1236	_____
6) $97 * 83 =$	8051	_____	27) $\sum_{k=0}^6 {}_6C_k =$	64	_____
7) 12^3	1728	_____	28) $38 * 28 - 14 * 19$	798	_____
8) $\log_{49} 36 * \log_6 81 * \log_3 343 =$	12	_____	29) Slope (13,-12) (5,24)	-9/2 OR -4 $\frac{1}{2}$ OR -4.5	_____
9) What is the sum of the roots of $4x^3 - 16x + 9x^2 - 17$?	-9/4	_____	30)		_____
10) $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots =$	1	_____		343:27	_____
11) 12 th term in the arithmetic sequence with first term -4 and common difference 9?	95	_____	31) $1^2 + 2^2 + 3^2 + \dots + 10^2 =$	385	_____
12) Sum first 45 natural numbers	1035	_____	32) $11 * 2007$	22077	_____
13) Coord of the vert of $x^2 - 4x + 7$	(2,3)	_____	33) $47 * 33$	1551	_____
14) $627 / 9 =$ (Mix Num)	69 $\frac{2}{3}$	_____	34) 4 apples = \$.78, 12 apples =	2.34	\$ _____
15) $\overline{.744}$ to a fraction	248/333	_____	35) How many days between June 16, 2006 and Sept 8, 2006 (exclusive)?	83	_____
16) Mean 17, 19, 27, 36 (dec)	24.75	_____	36) How many positive even numbers are less than 2007 and greater than 129?	939	_____
17) If $29 - 3x > -16$, then $x <$	15	_____	37) 36^2	1296	_____
18) If $A = 4$ and $B = -3$, then $-A^3B^{-2}$ (Mixed number)	-7 $\frac{1}{9}$	_____	38) $2\log_{343} 81 * 3\log_9 49$	8	_____
19) 999^2	998001	_____	39) If my H2 car gets 7 miles per gallon, at \$2.92 per gallon, how many miles can I travel with \$20.44?	49	_____mi
20) 92^2	8464	_____	40) Volume cube surface area 294 cm^2	343	_____ cm^3