

Skyview Invitational Games for Mathematical Achievement
Mental Math – 2006-2007 ROUND 2

Name _____
School _____ Team # _____
Division (circle one) Mu Alpha Theta

Correct _____ x5= _____
Skipped _____ x1= _____
Score: _____
Verify: _____

**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 must be given as improper fractions unless otherwise specified. Simplify all answers.

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

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| <p>1) 65^2 _____</p> <p>2) Convert 75_{10} to base 2 _____₂</p> <p>3) Which is smaller, $\frac{19}{32}$ or $\frac{11}{19}$? _____</p> <p>4) If you have 33 gallons and travel at 17 miles per gallon, how many miles do you travel? _____ mi</p> <p>5) $10\frac{3}{4} \times 4\frac{3}{8}$ (Mixed Number) _____</p> <p>6) $97 * 83 =$ _____</p> <p>7) 12^3 _____</p> <p>8) $\log_{49} 36 * \log_6 81 * \log_3 343 =$ _____</p> <p>9) What is the sum of the roots of $4x^3 - 16x + 9x^2 - 17$? _____</p> <p>10) $\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots =$ _____</p> <p>11) 12th term in the arithmetic sequence with first term -4 and common difference 9? _____</p> <p>12) Sum of the first 45 natural numbers _____</p> <p>13) Coordinates of the vertex of $y = x^2 - 4x + 7$ _____</p> <p>14) $627 / 9 =$ (Mixed Number) _____</p> <p>15) Convert $\overline{.744}$ to a fraction _____</p> <p>16) Mean of 17, 19, 27, 36 (decimal) _____</p> <p>17) If $29 - 3x > -16$, then $x <$ _____</p> <p>18) If $A = 4$ and $B = -3$, then $-A^3 B^{-2}$ (Mixed number) _____</p> <p>19) 999^2 _____</p> <p>20) 92^2 _____</p> | <p>22) $\prod_{j=1}^4 2^j$ _____</p> <p>23) What is the third pentagonal number? _____</p> <p>24) How many seconds are in 5 hours? _____</p> <p>25) Compute ${}_9C_4$ _____</p> <p>26) $12 * 103$ _____</p> <p>27) $\sum_{k=0}^6 {}_6C_k =$ _____</p> <p>28) $38 * 28 - 14 * 19$ _____</p> <p>29) Slope between (13,-12) and (5,24) _____</p> <p>30) If the ratio of the surface areas of two similar frustums is 49:9, then the ratio of their volumes is: _____</p> <p>31) $1^2 + 2^2 + 3^2 + \dots + 10^2 =$ _____</p> <p>32) $11 * 2007$ _____</p> <p>33) $47 * 33$ _____</p> <p>34) If 4 apples costs \$.78, a dozen apples costs \$ _____</p> <p>35) How many days between June 16, 2006 and Sept 8, 2006 (exclusive)? _____</p> <p>36) How many positive even numbers are less than 2007 and greater than 129? _____</p> <p>37) 36^2 _____</p> <p>38) $2 \log_{343} 81 * 3 \log_9 49$ _____</p> <p>39) If my H2 car gets 7 miles per gallon, at \$2.92 per gallon, how many miles can I travel with \$20.44? _____ mi</p> <p>40) Volume of a cube with surface area 294 cm² _____ cm³</p> |
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