



# Mental Math

## Test #343/362

Name: \_\_\_\_\_

ID Number: \_\_\_\_\_

School: \_\_\_\_\_

Division (circle one):

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- \_\_\_\_\_ 1. A 2 hr, 27 min flight is showing a 1 hr, 46 min movie, but the movie can't be shown during the initial or final 15 minutes of the flight. Will they finish the movie?
- \_\_\_\_\_ 2. The product of four consecutive positive even integers is 5760. What is the second greatest of these integers?
- \_\_\_\_\_ 3. Find  $f(2)$  if  $f(x) = x^2 - 4x + 12$
- \_\_\_\_\_ 4. At 4:40, what is the degree measure of the larger angle formed by the hour and minute hands of a clock?
- \_\_\_\_\_ 5. What is the inverse statement of "If this, then that."?
- \_\_\_\_\_ 6. If  $A$  is acute and  $\sin A = \frac{1}{2}$ , then what is the value of  $\cos A$ ?
- \_\_\_\_\_ 7. Evaluate:  $5^3$
- \_\_\_\_\_ 8. Find the median of the data set:  
3, 18, 7, 44, 24, 27
- \_\_\_\_\_ 9. What value of  $x$  satisfies  $3x + 4 = 5x$ ?
- \_\_\_\_\_ 10. Evaluate:  $10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2$
- \_\_\_\_\_ 11. A plane has 137 seats, 11 of which are first class. What is the probability of being randomly assigned a first class seat?
- \_\_\_\_\_ 12. Express as a reduced fraction: 0.24
- \_\_\_\_\_ 13. What is 14% of 50% of 100?
- \_\_\_\_\_ 14. A square with perimeter 24 encloses what area?
- \_\_\_\_\_ 15. If  $a$  and  $b$  are the roots of  $2x^2 - 5x + 6$ , find the value of  $a^2b + ab^2$ .
- \_\_\_\_\_ 16. Find the least prime number  $x > 60$ .
- \_\_\_\_\_ 17. A  $2 \times 3$  matrix and a  $4 \times 2$  matrix are multiplied, yielding a third matrix of what dimensions?
- \_\_\_\_\_ 18. Simplify:  $\left((81)^{0.5}\right)^{0.5}$
- \_\_\_\_\_ 19. What is the y-intercept of  $2x + 7y = 4$ ?
- \_\_\_\_\_ 20. How many combinations of at least 1 of 12 pizza toppings can I put on a pizza?
- \_\_\_\_\_ 21. Find  $x$  if  $3^3 + 3^3 + 3^3 = 3^x$ .
- \_\_\_\_\_ 22. It will take 267 gallons of gas to fill up a yacht's half-full gas tank. What is the capacity of the tank in gallons?
- \_\_\_\_\_ 23. If a frog catches 4 flies per day, how many flies did it catch in all during this past January, February, and March?
- \_\_\_\_\_ 24. Helen works twice as fast as Joan, who works twice as fast as Jenny. If Jenny can do the job in 17 hours, how many hours will it take Helen to do the same job?
- \_\_\_\_\_ 25. Find the minimum enclosed area of a circle passing through  $(3,3)$  and  $(-3,-3)$ .
- \_\_\_\_\_ 26. I have 1 each of a nickel, penny, and silver dollar; 2 dimes; and 4 quarters. How many dollars and cents do I have?
- \_\_\_\_\_ 27. My trail mix is composed solely of almonds and raisins. I have 4 almonds for every raisin and 65 almonds and raisins total. How many raisins do I have?
- \_\_\_\_\_ 28. What time is 340 minutes before 5:23 pm?
- \_\_\_\_\_ 29. Find the sum of the 3 least positive prime numbers.
- \_\_\_\_\_ 30. When 201 is divided by 7, what is the remainder?
- \_\_\_\_\_ 31. Evaluate:  $\sqrt{\sqrt{\sqrt{390,625}}}$
- \_\_\_\_\_ 32. Solve for  $x$ :  $35x^2 - x - 12 = 0$
- \_\_\_\_\_ 33. 12% of 22% of an item is equivalent to what single percentage of the item?
- \_\_\_\_\_ 34. Evaluate:  $\log_2 4096$
- \_\_\_\_\_ 35. Find the numerator of the simplified sum:  
 $\frac{1}{x} + \frac{2}{y} + \frac{3}{xy}$
- \_\_\_\_\_ 36. Simplify:  $|x| - |-x|$
- \_\_\_\_\_ 37. A circle with enclosed area  $256\pi$  has what circumference?
- \_\_\_\_\_ 38. Evaluate:  $\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5} \cdot \frac{5}{6} \cdot \frac{6}{7} \cdot \frac{7}{8} \cdot \frac{8}{9}$
- \_\_\_\_\_ 39. Find the hundreds digit of  $10!$ .
- \_\_\_\_\_ 40. A hexagon with apothem  $7\sqrt{3}$  encloses what area?