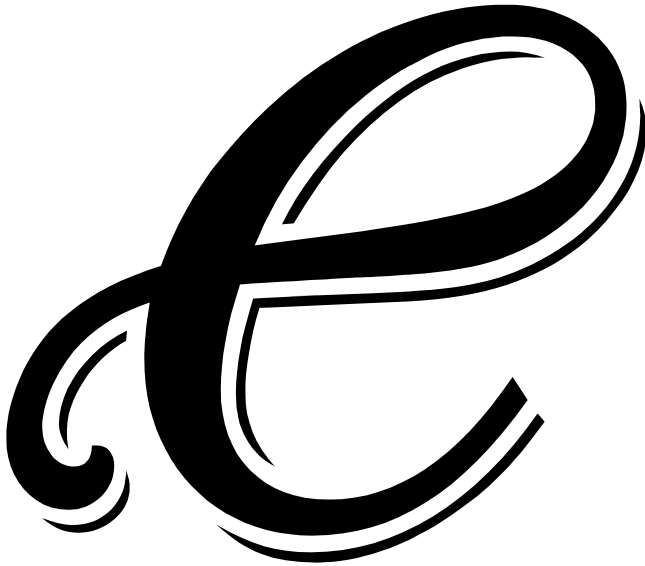


REMT 2003

ANSWERS



MATHEMATICAL

MANIPULATION

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
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10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

LAST NAME

FIRST NAME

GRADE

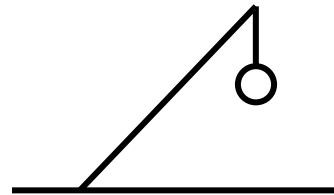
Be sure to write each of your answers on the answer sheet.

1. The sum of the integers from 1 to 200 is 20100. What is the sum of the odd integers from 1 to 199 ?
2. What is the sum of the integers from 201 to 400 ?
3. What is the sum of all the multiples of 5 from 5 to 1000 ?
4. The number 128 has eight distinct positive integer divisors. What is the product of all these divisors?
5. For a certain quadratic function f , it is known that $f(0) = 0$, $f(1) = 4$, and $f(-1) = 2$. What is $f(3)$?

6. Solve the equation $a = \frac{b+5}{b-6}$ for b in terms of a .
7. Simplify as much as possible the expression $\frac{3x^2 - 16x + 5}{3x^2 + 20x - 7}$.
8. Simplify as much as possible the expression $\frac{1}{\sqrt{x}-1} - \frac{\sqrt{x}}{x-1}$.
9. What trigonometric function is equal to the expression $\csc x - \cos x \cot x$?
10. P is inversely proportional to Q and directly proportional to R. If P = 20 when Q = 30 and R = 40, what will P be when Q = 36 and R = 20?

11. If $f(x) = -5x + 3$, what is $f^{-1}(x)$?
12. If $\log_3 x = 8$, for what base b will $\log_b x = 16$?
13. Solve for x in the equation $\log(x + 26) = \log(x - 10) + 1$.

14. In a children's playground, a 10 foot pole is propped up at an angle of 60 degrees with the ground, and a ball is suspended from the end of the pole by a 40 inch cord. To the nearest inch, how many inches above the ground is the top of the ball?



15. The average length in inches of the antlers of a certain species of elk t years after birth is given by the formula $L = 30(1 - 0.7^t)$. At what age, to the nearest year, does the average antler length of this species of elk reach a length of 18 inches?