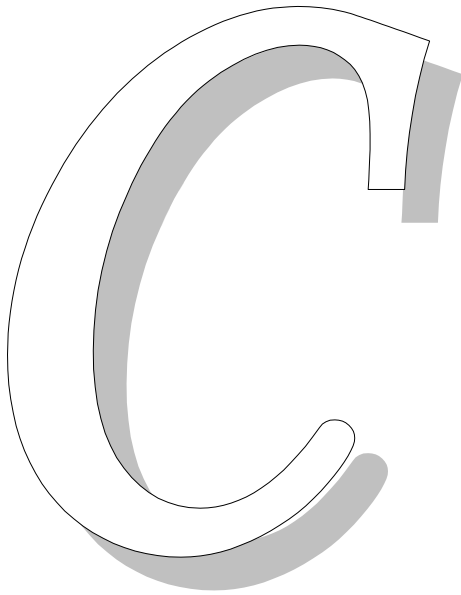


REMT 2008

ANSWERS



MATHEMATICAL

MANIPULATION

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

LAST NAME

FIRST NAME

GRADE

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

1. Simplify as much as possible the expression: $\frac{x^2 - 4}{x^2 + 2x - 8}$.

2. Simplify as much as possible the expression: $\frac{\sqrt{x}}{\sqrt{x+2}} + \frac{\sqrt{x}}{\sqrt{x-2}}$.

3. Solve for x in the equation $\frac{2}{x} + \frac{3}{4} = \frac{5}{6}$.

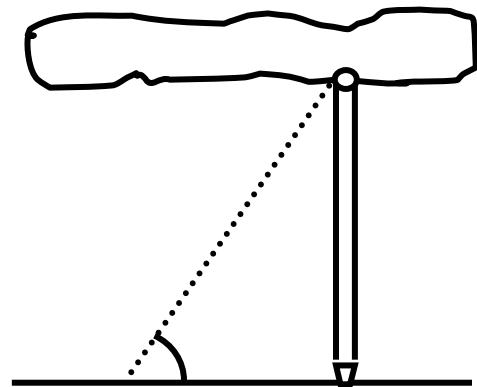
4. Solve $s = \frac{3t}{t-5}$ for t in terms of s .

5. A is directly proportional to B and inversely proportional to C . If A is 2 when B is 6 and C is 2, what is A when B is 30 and C is 5?

6. If $f(x) = 2x + 3$ and $f(g(x)) = 4x + 5$, what is $g(x)$?
7. What is the slope of a line that is perpendicular to the line whose equation is $3x + 4y = 5$?
8. The line $3x - y = 6$ is tangent to the parabola $y = x^2 - 5x + 10$. What is the y -coordinate of the point of tangency?
9. Solve for x in the following equation: $9^{x+2} = 9^x + 240$.
10. Solve for x in the following equation: $\log \sqrt{30x+45} = \log \sqrt{3x} + 1$.

11. If $\log_a x = 3.5$ and $\log_a y = 6.1$, what is $\log_a (xy^2)$?
12. What trigonometric function is equal to the expression $\sec x \csc x - \tan x$?

13. At the airport, the height of the cloud cover is measured by projecting a light beam straight up, and from a point 300 feet away from the light source, measuring the angle of elevation of the spot where the light beam hits the clouds. When the angle of elevation is 75 degrees, what is the height of the cloud cover, to the nearest foot?



14. In a certain triangle ABC, angle A measures 60 degrees. Side AB has length 15 and side AC has length 24. What is the length of side BC?
15. The temperature, measured in degrees Fahrenheit, of a cup of tea is given by the formula $F(t) = 70 + 142e^{-0.09t}$ where t is the number of minutes after the hot water is poured into the teacup. How many minutes (to the nearest minute) will it take for the tea to reach a temperature of 110 degrees?