

MAA SAMPLE MATHEMATICS TEST
ALGEBRA

The items on this sample test are similar to the items on the Algebra Test in level of difficulty. However, not all of the topics or types of items that are on the Algebra Test are included here.

1. Remove the parenthesis and simplify the expression $\sqrt{3}(\sqrt{3} + 2)$.

2. Remove the parenthesis and simplify the expression $\left(\frac{x^2 - 4}{2x}\right)\left(\frac{6}{3x - 6}\right)$.

3. Solve the equation $x^2 + 2x = 3$.

4. If $f(x) = \frac{x + 3}{5 - x}$ then find a rational expression for $f(a + 4)$.

5. Find the exact value of the expression $(32)^{2/5} + (16)^{1/4}$.

6. Find an equation of the line parallel to the line $x + y = 1$ and passing through the point $(2, -4)$.

7. If x , y and z are positive real numbers, find w for which $\log(w) = \log(x) - \log(y) + 3\log(z)$.

8. In a calculus class, 15 of the students play soccer. Find the total number of students in the class if 3 out of every 5 play soccer.

9. Graph the region that corresponds to the inequalities $0 \leq y \leq 3$ and $x \geq 0$.

10. Express $\sqrt{50x^4y^{10}}$ in simplest radical form.

11. If $f(x) = x^2 + kx + (1 - k)$ and $f(3) = 8$, then find a value for k .

12. In the figure below, the large rectangle has dimensions 6 inches by 9 inches. The squares on each corner are 2 inches by 2 inches. Find the area in square inches of the unshaded region.

