

# [Quadratic equations and prime numbers](https://assignbuster.com/quadratic-equations-and-prime-numbers/)

Project An Interesting Method for Solving Quadratic Equation from India A quadratic equation can be solved using many different methods availablesuch as quadratic formula, graphical method, factorization, and completing the square. This paper will use and discuss an interesting method for solving quadratic equations came from India (Bluman, 2005).   
For example, taking quadratic equation . The steps of this method are   
(a) Move the constant term to the right of the equation.   
(b) Multiply each term in the equation by four times the coefficient of the term.   
(c) Square the coefficient of the original x term and add it to both sides of the equation.   
(d) Take the square root of both sides.   
(e) Set the left side of the equation equal to the positive square root of the number on the right side and solve for x.   
(f) Set the left side of the equation equal to the negative square root of the number on the right side and solve for x.   
The values x = 2, and x = -5 satisfies the quadratic equation. Therefore, the solutions are correct.   
Using this approach, the solutions for some other quadratic equations are given below.   
A) ; Solution: ,   
B) ; Solution: No real solution, as the right side of the equation is negative number in step (c) of this method (See Appendix 1).   
C); Solution: ,   
D) ; Solution: ,   
In conclusion, whenever it is possible to take square root of the right side of the equation in step (d) of this method, there exist real solutions of the equation. And, whenever it is not possible to take square root of the right side of the equation in step (d) of this method, there exist no real solutions of the equation.   
Reference   
Bluman, A. G. (2005). Mathematics in Our World. McGraw-Hill: New York.   
Appendix 1   
A)   
  
B)   
, no real solution as it is not possible to take square root of -32.   
C)   
  
D)   
  
Project #2: Quadratic Formula for Yielding Prime Numbers   
Prime number is defined as the number divisible by 1 or itself. A prime number has only two factorization 1 and the number itself. Mathematicians have been searching for a formula that yields prime numbers and found one such formula as (Bluman, 2005). This paper will use this formula for yielding prime numbers and verify extent to which it can generate prime numbers.   
Let   
Lets plug in x = 0, 1, 2, 3, 5, 7, 10, 12 and 20 and see if we get prime numbers.   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
(Prime number)   
Therefore, it can be seen that the yields prime number for smaller values of x. The formula will not yield prime number when the term will be zero as will be divisible by x. Therefore, putting the term equals to zero.   
  
Now, lets plug in x = 41 and 42 and see if we get prime numbers.   
(Composite number)   
(Composite number)   
In conclusion, the formula yields prime number for x value less than 41 (see appendix 1). However, for x value equal to or greater than 41 it does not yields prime number.   
Reference   
Bluman, A. G. (2005). Mathematics in Our World. McGraw-Hill: New York.   
Appendix 1   
Table 1: Primer number using formula   
x   
Prime Number   
x   
Prime Number   
0   
41   
Yes   
22   
503   
Yes   
1   
41   
Yes   
23   
547   
Yes   
2   
43   
Yes   
24   
593   
Yes   
3   
47   
Yes   
25   
641   
Yes   
4   
53   
Yes   
26   
691   
Yes   
5   
61   
Yes   
27   
743   
Yes   
6   
71   
Yes   
28   
797   
Yes   
7   
83   
Yes   
29   
853   
Yes   
8   
97   
Yes   
30   
911   
Yes   
9   
113   
Yes   
31   
971   
Yes   
10   
131   
Yes   
32   
1033   
Yes   
11   
151   
Yes   
33   
1097   
Yes   
12   
173   
Yes   
34   
1163   
Yes   
13   
197   
Yes   
35   
1231   
Yes   
14   
223   
Yes   
36   
1301   
Yes   
15   
251   
Yes   
37   
1373   
Yes   
16   
281   
Yes   
38   
1447   
Yes   
17   
313   
Yes   
39   
1523   
Yes   
18   
347   
Yes   
40   
1601   
Yes   
19   
383   
Yes   
41   
1681   
No, Composite Number   
20   
421   
Yes   
42   
1763   
No, Composite Number   
21   
461   
Yes