

# [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