

Quadratic Equation
CREATIVE QUESTION

1. Check whether the following are Quadratic equations:
a. $(x+1)^2 = 2(x+3)$ b. $(x+3)(2x+1) = x(x+5)$ c. $(x+2)^3 = 2x(x^2-1)$
2. Find the roots of the Quadratic Equation by Factorization Method:
a. $6x^2 - x - 2 = 0$ b. $3x^2 - 2\sqrt{6}x + 2 = 0$ c. $x^2 - 3x = 0$ d. $x^2 - 4 = 0$
3. Find two numbers whose sum is 27 and product is 182.
4. Find two consecutive integers, sum of whose squares is 365.
5. The altitude of a right triangle is 7cm less than its base. If the hypotenuse is 13cm, Find the other two sides.
6. Solve the following Quadratic equations by completing the Square method:
a. $5x^2 - 6x - 2 = 0$ b. $2x^2 + x - 4 = 0$ c. $2x^2 + x - 4 = 0$ d. $4x^2 + 4\sqrt{3}x + 3 = 0$
7. The diagonal of a rectangular field is 60 meters more than the shorter side.
If the longer side is 30 meters more than the shorter side. Find the sides of the field.
8. The difference of squares of two numbers is 180. The square of the smaller number is 8 times the larger number. Find the numbers.
9. A train Travels 360 km at a uniform speed. If the speed had been 5km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train.
10. Sum of the areas of two squares is 468 m^2 , if the difference of their perimeters is 24m, find the sides of the squares.
11. A motor boat whose speed is 18km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream.
12. The Sum of the reciprocals of Rehman's ages, (in years) 3 years ago and 5 years from now is $\frac{1}{3}$. Find his present age.
13. Find the value of the 'k' for each of the following quadratic equation, so that they have two equal roots.
a. $2x^2 + kx + 3 = 0$ b. $kx(x-2) + 6 = 0$
14. Is it possible to design a rectangular park of perimeter 80 m and area 400 m^2 ? If so, find its length and breadth.
15. Is it possible to design a rectangular mango grove whose length is twice its breadth, and the area is 800 m^2 ? If so, find its length and breadth.