This worksheet aims to practise rewriting quadratic equations in completed square form in order to reveal their solutions. You will complete the square step by step to convert the standard quadratic equation into the form $a(x-h)^2+k=0$, from which the solutions for x can be deduced.

Easy Questions

1. Solve the equation $x^2+6x+5=0$ by completing the square.
2. Solve the equation $x^2+4x+4=0$ by completing the square.
3. Solve the equation $x^2-10x+21=0$ by completing the square.
4. Solve the equation $x^2+2x=8$ by completing the square.
5. Rewrite the equation $x^2+8x=20$ in completed square form.

Intermediate Questions

6. Solve the equation $2x^2+8x+6=0$ by completing the square.
7. Solve the equation $x^2-12x+35=0$ by completing the square.
8. Express the equation $x^2+10x-24=0$ in completed square form.
9. Solve the equation $3x^2+12x+9=0$ by completing the square.
10. Solve the equation $4x^2-16x+12=0$ by completing the square.
11. Solve the equation $x^2-4x-5=0$ by completing the square.
12. Solve the equation $x^2+6x=7$ by completing the square.
13. Rewrite the equation $2x^2-8x-3=0$ in completed square form and solve.
14. Solve the equation $x^2+14x+45=0$ by completing the square.
15. Transform the equation $5x^2+20x+15=0$ into completed square form and solve.
16. Solve the equation $x^2-16=4x$ by completing the square.
17. Solve the equation $x^2+4x-12=0$ by completing the square.
18. Solve the equation $2x^2+10x+8=0$ by completing the square.

19. Solve the equation $6x^2 + 12x + 4 = 0$ by completing the square.

20. Solve the equation $x^2 - 8x + 11 = 0$ by completing the square.

Hard Questions

21. Solve the equation $3x^2 + 18x - 21 = 0$ by completing the square.

22. Solve the equation $0.5x^2 + 3x + 2.5 = 0$ by completing the square.

23. Solve the equation $4x^2 + 4x - 5 = 0$ by completing the square.

24. Solve the equation $2x^2 - x - 3 = 0$ by completing the square.

25. Solve the equation $5x^2 + 25x + 20 = 0$ by completing the square.

26. Solve the equation $x^2 - 7x + 10 = 0$ by completing the square.

27. Solve the equation $3x^2 - 15x + 12 = 0$ by completing the square.

28. Transform the equation $2x^2 - 3x + 1 = 0$ into completed square form and solve.

29. Solve the equation $6x^2 + 11x - 35 = 0$ by completing the square.

30. A ball is thrown upwards and its height is given by $h = -5x^2 + 20x + 15$, where h is the height in metres and x is the time in seconds. Rewrite the equation in completed square form and determine the time at which the ball reaches its maximum height.