In this worksheet you will learn to recognise the pattern of the difference of two squares and factorise expressions accordingly.

Easy Questions

1. Factorise the expression $x^2 - 9$ by recognising it as a difference of two squares.
2. Factorise the expression $16y^2 - 25$ using the difference of two squares method.
3. Recognise and factorise $49 - 4z^2$ as a difference of two squares.
4. Factorise the expression $9a^2 - 1$ by expressing each term as a perfect square.
5. Write $36t^2 - 49$ as a product of two factors by applying the difference of two squares formula.

Intermediate Questions

6. Factorise $36a^2 - 64$ by recognising that $36a^2 = (6a)^2$ and $64 = 8^2$.
7. Factorise $25x^2 - 9y^2$ by writing each term as a square.
8. Factorise $49p^2 - 81q^2$ via identifying the perfect squares $(7p)^2$ and $(9q)^2$.
9. Factorise $64x^2 - 1$ by noting that $64x^2 = (8x)^2$ and $1 = 1^2$.
10. Factorise $121 - 4y^2$ by expressing 121 as 11^2 and $4y^2$ as $(2y)^2$.
11. Factorise $100m^2 - 49n^2$ recognising that $100m^2 = (10m)^2$ and $49n^2 = (7n)^2$.
12. Factorise $9x^2 - 16$ by writing $9x^2 = (3x)^2$ and $16 = 4^2$.
13. Factorise $4a^2 - 49$ as a difference of two squares noting that $4a^2 = (2a)^2$ and $49 = 7^2$.
14. Factorise $121z^2 - 64$ by recognising that $121z^2 = (11z)^2$ and $64 = 8^2$.
15. Factorise $16k^2 - 25t^2$ by writing $16k^2 = (4k)^2$ and $25t^2 = (5t)^2$.
16. Factorise $81r^2 - 1$ by recognising $81r^2 = (9r)^2$ and $1 = 1^2$.
17. Evaluate by factorising the expression $144 - 9x^2$ by writing $144 = 12^2$ and $9x^2 = (3x)^2$.
18. Factorise $100 - 49y^2$ by identifying $100 = 10^2$ and $49y^2 = (7y)^2$.

19. Factorise $4p^2 - 121q^2$ noting that $4p^2 = (2p)^2$ and $121q^2 = (11q)^2$.

20. Factorise $x^4 - 16$ completely by recognising that $x^4 = (x^2)^2$ and $16 = 4^2$; then further factorise any difference of squares if possible.

Hard Questions

21. Factorise $4x^4 - 9y^4$ by writing $4x^4 = (2x^2)^2$ and $9y^4 = (3y^2)^2$.

22. Factorise completely $16x^4 - 81$ by recognising that $16x^4 = (4x^2)^2$ and $81 = 9^2$ and then factorise any factor that is itself a difference of two squares.

23. Factorise $9x^4 - 25y^4$ completely by writing $9x^4 = (3x^2)^2$ and $25y^4 = (5y^2)^2$.

24. Factorise completely $49x^4 - 64y^4$ by expressing each term as a square.

25. Factorise $144a^2 - 9b^4$ by recognising $144a^2 = (12a)^2$ and $9b^4 = (3b^2)^2$; then simplify the result.

26. Factorise $x^8 - 16$ by writing $x^8 = (x^4)^2$ and $16 = 4^2$, then factorise further any resulting difference of squares.

27. Factorise $81x^4 - 16$ by noting that $81x^4 = (9x^2)^2$ and $16 = 4^2$ and then factor the difference of two squares completely.

28. Factorise completely $100y^4 - 49z^4$ by expressing $100y^4 = (10y^2)^2$ and $49z^4 = (7z^2)^2$.

29. Factorise $36x^4 - 16y^4$ completely by writing $36x^4 = (6x^2)^2$ and $16y^4 = (4y^2)^2$ and then simplifying by taking out any common factors.

30. Recognise that $9x^2 - 24xy + 16y^2 - 25z^2$ can be written as a difference between two squares and factorise it completely.