

1. Using factor theorem show $x - 2$ is a factor of $x^6 - 64$
2. Factorise
 - (i) $2x^3 + 7x^2 - 9$ (ii) $4z^3 + 23z^2 - 41z - 42$ (iii) $6x^3 - x^2 - 12x - 5$
 - (iv) $6x^2 - 13x + 6$ (v) $p^3(q - r)^3 + q^3(r - p)^3 + r^3(p - q)^3$
3. Find value using suitable identity
 - (a) 999^3 (b) 99.8^3 (c) $x^3 - 8y^3 - 36xy - 216$ when $x = 2y + 6$. (d) $70^3 - 50^3 - 20^3$
4. Find the remainder when $x^3 - 5x + 8$ is divided by $x - 2$
5. Find m if $x - 3$ is a factor of $x^3 + x^2 - mx + 15$
6. Find dimensions of a Cuboid if its volume is $15ax^2 + 10ax - 25a$
7. Find value of 'a' for which $(x - 4)$ is a factor of $(2x^3 - 3x^2 - 18x + a)$.
8. Find the constant k if $2x - 1$ is a factor of $f(x) = 4x^2 + kx + 1$. Using this value of k , factorize $f(x)$ completely.
9. The expression $2x^3 + ax^2 + bx - 2$ leaves remainders of 7 and 0 when divided by $2x - 3$ and $x + 2$ respectively. Calculate the values of a and b . With these values of a and b , factorize the expression completely.
10. If $x + 1$ and $x - 1$ are factors of $f(x) = x^3 + 2ax + b$, calculate the values of a and b . Using these values of a and b , factorize $f(x)$ completely.
11. If $x^2 - 1$ is a factor of $f(x) = x^4 + ax + b$, calculate the values of a and b . Using these values of a and b , factorize $f(x)$.
12. Given that $x^2 - x - 2$ is a factor of $x^3 + 3x^2 + ax + b$, calculate the values of a and b and hence find the remaining factor.
13. The polynomial $x^4 + bx^3 + 59x^2 + cx + 60$ is exactly divisible by $x^2 + 4x + 3$. Find the values of b and c .
14. Show that $x - 1$ is a factor of $2x^2 + x - 3$. Hence factorize $2x^2 + x - 3$ completely.
15. Show that $2x + 3$ is a factor of $6x^2 + 5x - 6$. Hence find the other factor.
16. Show that $x + 2$ is a factor of $f(x) = x^3 + 2x^2 - x - 2$. Hence factorize $f(x)$ completely.
17. Show that $x - 1$ is a factor of $x^5 - 1$ while $x^5 + 1$ is not divisible by $x - 1$.
18. Using remainder theorem, find the value of a if the division of $x^3 + 5x^2 - ax + 6$ by $(x - 1)$ leaves the remainder 2