



Factorisation

Factorising Expressions	
Factorisation is the opposite of expanding brackets. It involves identifying the highest common factor (HCF) of each term and bringing them out of the brackets.	For example, Factorise $5x + 15$. The HCF for both terms is 5. Therefore, bring 5 outside the brackets and <u>fill in the remaining terms</u> so that the expression is equal. $5x + 15 = 5(x + 3)$

Instructions: Factorise the expressions below.

1	$27a^2 + 18a$
2	$12w^2y^2 + 16w^2y$
3	$28b^3c^2 - 35bc + 14c$
4	$16j^3 + 24j^2k^3 - 8j^2$
5	$42r^4 + 6q^4r - 18r$
6	$4(x + 2) + x(x + 2)$



7	$72k^9l^3 - 60k^4l + 12l^9$
8	$88cd^3 + 11c^4d^7 - 121d^4$
9	$27v^8u^5 + 108v^3u^7 - 54vu^{11}$
10	$2x(4x + 3) - 13(4x + 3)$
11	$(4x + y)^2 - (x - y)(4x + y)$
12	$-42m^3n - 72m^2n^7 - 12m^2n^3o^5$
13	$63j^9kl - 81j^4k^4l^2 + 54j^7kl^2$
14	$84p^4r^4 + 7p^3r^8 + 14pq^2r^3$
15	$5x(3x - 7) + 9(3x - 7)$
16	$(9b + c)^3 - 3(a - e)^2(9b + c)$
17	$36vu^3w - 24v^{10}u^4w^4 + 60v^4uw^9$



18

$$20a(c - 9) - 80a(c - 9)$$

19

$$64m^7no^{12} - 96m^5n^5o^5 + 48m^8n^2o$$

20

$$36x^2(8 - 3x) - 27x(8 - 3x)$$

21

$$45h^7i^8j^7 - 27h^3i^5j^9 + 108h^{13}i^{11}j^{14}$$

22

$$-144e^2f^{11}g^4 - 48e^3f^9g^3 - 132e^4f^7g^{12}$$

23

$$15x^2(3x + 4) - 45x(3x + 4)$$

24

$$56x^3(x - 11) - 40x^2(x - 11)$$

25

$$4(7e + f)^4 - 8(g - h)(7e + f)$$

26

$$28d^3(x + 3) + 77d(x + 3)(x - 2)$$

27

$$-150x^5y^2z^{14} + 25x^7y^{13}z^8 - 125xy^3z^{15}$$

28

$$99a^4(6x - 7)^2 - 110a^5(6x - 7)(2y + 7)$$

Factorisation

Factorising Expressions	
Factorisation is the opposite of expanding brackets. It involves identifying the highest common factor (HCF) of each term and bringing them out of the brackets.	For example, Factorise $5x + 15$. The HCF for both terms is 5. Therefore, bring 5 outside the brackets and <u>fill in the remaining terms</u> so that the expression is equal. $5x + 15 = 5(x + 3)$

Instructions: Factorise the expressions below.

1	$35b^2 + 14b$
2	$84d^3 + 12d^2$
3	$11(x - 5) + x(x - 5)$
4	$56j^5 - 24j^3k - 64j^4k^2$
5	$7y(2n + 3) - 2(2n + 3)$
6	$15s^2t + 18st^3 - 3t$



7	$60n^5 + 24m^6n^2 - 3n^5$
8	$(m + 3)(j + 2) + (m + 2)(m + 3)$
9	$36x^7y^{10} + 16x^3y^2z + 4xyz^4$
10	$27d^4ef^3 + 9d^5e^2f^2 - 45d^9e^4f^5$
11	$13r(7q - 9) - 4(7q - 9)$
12	$(8n + 5)^2 - 4(m - 1)(8n + 5)$
13	$15a(4b + 5) + 10d(4b + 5)$
14	$144v^3u^5x - 48v^7u^2x^3 - 60v^5u^3x^4$
15	$48fj(6x + 7) - 36j(6x + 7)$
16	$32g^{11}h^9i^3 + 40g^6h^8i^2 - 56g^5h^3i^5$
17	$49a^5b^2c^9 - 70a^6b^4c^5 + 28a^2bc^3$



18	$(9q - 4)(3p + 5)^3 + (3p + 5)^2(p + 1)$
19	$96m^2n^{14}o^{10} + 64m^8n^2o^{12} + 40m^5n^7o^4$
20	$100q^8r^3s^{11} - 40q^7r^7s^7 + 120q^{13}r^2s^{14}$
21	$(18b^8d^3e^5 - 30b^3d^2e^6 + 24bde^3)(9b - 5)$
22	$63p^2(7n + 1) + 81p^3(7n + 1)(m - 8)$
23	$120e^4t^{17} - 132d^5e^9t^8 - 144de^4f^3$
24	$(7x + 18)(18x^4 + 81x^{16}y^3z^5 - 72x^3y^5z^{12})$
25	$88c^9(3k - 10)^2 - 121c^5(3k - 10)(l + 4)^2$
26	$132d^8e^2f^{15} + 99d^5e^4f^7 - 33d^4e^{12}f^9$
27	$96t^8(11s + 7)^4 - 108t^5(t + 8)^3(11s + 7)^5$
28	$36x^9y^5z^{13} - 72x^{11}y^{12}z^4 + 144x^6y^7z^8$