

Factorizing involves finding the Highest Common Factor and putting it outside of the bracket.

eg. $12ab^2 + 4ac$
 $= 4a(3b^2 + c)$
 (the HCF of 12 and 4 is 4)
 (the HCF of ab^2 and ac is 'a')

eg. $4d^2 - d$
 $= d(4d - 1)$
 ('d' is common to $4d^2$ and d)

eg. $20j^4 + 8j^3$
 $= 4j^3(5j + 2)$
 (the HCF of 20 and 8 is 4)
 (the HCF of j^4 and j^3 is ' j^3 ')

eg. $x^3 + 8x$
 $= x(x^2 + 8)$
 ('x' is common to x^3 and $8x$)

1. Factorize the following by finding the HCF and putting it outside of the bracket:

a) $2y + 6$ b) $8k - 12$ c) $25m - 15$ d) $24 + 26g$ e) $14ab - 18b$
 (+) (-) (-) (+) (-)

f) $10m + 12mn$ g) $21hi - 24h$ h) $ef + eg$ i) $16 + 24r$ j) $12 - 60x$
 (+) (-) (+) (+) (-)

2. Factorize the following by finding the HCF and putting it outside of the bracket:

a) $4a + 8b$ b) $6p - 4pq$ c) $ab + bc$ d) $4ef - 16fg$ e) $10k - 5jk$

f) $9yz + 6wy$ g) $15gh - 25g$ h) $de + 2e$ i) $18h + 27hi$ j) $6abc + 21bcd$

3. Factorize the following by finding the HCF and putting it outside of the bracket:

a) $a + a^2$ b) $g^2 - g$ c) $2a + a^3$ d) $4e^2 - e$ e) $w + 2w^2$

f) $12n^2 - 15mn$ g) $14fg + 18g^2$ h) $2j^4 + j^2$ i) $36x^3 + 24x^3y$ j) $2a^5 - 6a^3 + 8a^2$

4. Tell whether the following have been correctly factorized by circling YES or NO:

a) $2a + a^2$ $= 2a(1 + a)$ YES NO	b) $6n^3 + 3n^2$ $= 3n^2(2n + 1)$ YES NO	c) $-3a^2 + 2a$ $= a(-3a + 2)$ YES NO	d) $2m^4 - 6m$ $= 2m(m^4 - 6)$ YES NO	e) $4p^2 - 2$ $= 2p(2p - 1)$ YES NO
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5. Factorize the following by finding the HCF and putting it outside of the bracket:

a) $25n^3 + 15n$ b) $6x^2 - 2p$ c) $8a^2b^3 + 4ab^2$ d) $5fg^2 - 15f^2g$

f) $32m^3n^2 - 48m^2n$ g) $24x^2y + 40y^2z$ h) $55jk^4 + 33j^2k$ i) $18xy^3 + 54x^2y^2$