

EXERCISE 7.2

Factorize the following:

1. $3x - 9$

Solution:

The greatest common factor in the given two terms is 3

$$3x - 9$$

$$3(x - 3)$$

2. $5x - 15x^2$

Solution:

The greatest common factor in the given two terms is $5x$

$$5x - 15x^2$$

$$5x(1 - 3x)$$

3. $20a^{12}b^2 - 15a^8b^4$

Solution:

Greatest common factor in the given two terms is $5a^8b^2$

$$20a^{12}b^2 - 15a^8b^4$$

$$5a^8b^2(4a^4 - 3b^2)$$

4. $72x^6y^7 - 96x^7y^6$

Solution:

Greatest common factor in the given two terms is $24x^6y^6$

$$72x^6y^7 - 96x^7y^6$$

$$24x^6y^6(3y - 4x)$$

5. $20x^3 - 40x^2 + 80x$

Solution:

Greatest common factor in the given three terms is $20x$

$$20x^3 - 40x^2 + 80x$$

$$20x(x^2 - 2x + 4)$$

6. $2x^3y^2 - 4x^2y^3 + 8xy^4$

Solution:

Greatest common factor in the given three terms is $2xy^2$

$$2x^3y^2 - 4x^2y^3 + 8xy^4$$

$$2xy^2(x^2 - 2xy + 4y^2)$$

7. $10m^3n^2 + 15m^4n - 20m^2n^3$

Solution:

Greatest common factor in the given three terms is $5mn^2$

$$10m^3n^2 + 15m^4n - 20m^2n^3$$

$$5m^2n(2mn + 3m^2 - 4n^2)$$

8. $2a^4b^4 - 3a^3b^5 + 4a^2b^5$

Solution:

Greatest common factor in the given three terms is a^2b^4

$$2a^4b^4 - 3a^3b^5 + 4a^2b^5$$

$$a^2b^4(2a^2 - 3ab + 4b)$$

9. $28a^2 + 14a^2b^2 - 21a^4$

Solution:

Greatest common factor in the given three terms is $7a^2$

$$28a^2 + 14a^2b^2 - 21a^4$$

$$7a^2(4a + 2b^2 - 3a^2)$$

10. $a^4b - 3a^2b^2 - 6ab^3$

Solution:

Greatest common factor in the given three terms is ab

$$a^4b - 3a^2b^2 - 6ab^3$$

$$ab(a^3 - 3ab - 6b^2)$$

11. $2l^2mn - 3lm^2n + 4lmn^2$

Solution:

Greatest common factor in the given three terms is lmn

$$2l^2mn - 3lm^2n + 4lmn^2$$

$$lmn(2l - 3m + 4n)$$

12. $x^4y^2 - x^2y^4 - x^4y^4$

Solution:

Greatest common factor in the given three terms is x^2y^2

$$x^4y^2 - x^2y^4 - x^4y^4$$

$$x^2y^2(x^2 - y^2 - x^2y^2)$$

13. $9x^2y + 3axy$

Solution:

Greatest common factor in the given three terms is $3xy$

$$9x^2y + 3axy$$
$$3xy(3x + a)$$

14. $16m - 4m^2$

Solution:

Greatest common factor in the given two terms is $4m$

$$16m - 4m^2$$

$$4m(4 - m)$$

15. $-4a^2 + 4ab - 4ca$

Solution:

Greatest common factor in the given three terms is $-4a$

$$-4a^2 + 4ab - 4ca$$

$$-4a(a - b + c)$$

16. $x^2yz + xy^2z + xyz^2$

Solution:

Greatest common factor in the given three terms is xyz

$$x^2yz + xy^2z + xyz^2$$

$$xyz(x + y + z)$$

17. $ax^2y + bxy^2 + cxyz$

Solution:

Greatest common factor in the given three terms is xy

$$ax^2y + bxy^2 + cxyz$$

$$xy(ax + by + cz)$$

