

## EXERCISE 7.2

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**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  $xy$ 

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

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