

RD SHARMA

Solutions

Class 8 Maths

Chapter 7

Ex 7.1

Find the greatest common factor of the following polynomials (Q.1 – Q.14)

Q.1) $2x^2$ and $12x^2$

Soln.:

The numerical coefficients of the given monomials are 2 and 12.

So, the greatest common factor of 2 and 12 is 2.

The common literal appearing in the given monomials is x.

The smallest power of x in the two monomials is 2.

The monomial of the common literals with the smallest powers is x^2 .

Hence, the greatest common factor is $2x^2$.

Q.2) $6x^3y$ and $18x^2y^3$

Soln.:

The numerical coefficients of the given monomials are 6 and 18.

The greatest common factor of 6 and 18 is 6.

The common literals appearing in the two monomials are x and y.

The smallest power of x in the two monomials is 2.

The smallest power of y in the two monomials is 1.

The monomial of the common literals with the smallest powers is x^2y .

Hence, the greatest common factor is $6x^2y$.

Q.3) $7x$, $21x^2$ and $14xy^2$

Soln.:

The numerical coefficients of the given monomials are 7, 21 and 14.

The greatest common factor of 7, 21 and 14 is 7.

The common literal appearing in the three monomials is x.

The smallest power of x in the three monomials is 1.

The monomial of the common literals with the smallest powers is x.

Hence, the greatest common factor is 7x.

Q.4) $42x^2yz$ and $63x^3y^2z^3$

Soln.:

The numerical coefficients of the given monomials are 42 and 63.

The greatest common factor of 42 and 63 is 21.

The common literals appearing in the two monomials are x, y and z.

The smallest power of x in the two monomials is 2.

The smallest power of y in the two monomials is 1.

The smallest power of z in the two monomials is 1.

The monomial of the common literals with the smallest powers is x^2yz .

Hence, the greatest common factor is $21x^2yz$.

Q.5) $12ax^2$, $6a^2x^3$ and $2a^3x^5$

Soln.:

The numerical coefficients of the given monomials are 12, 6 and 2.

The greatest common factor of 12, 6 and 2 is 2.

The common literals appearing in the three monomials are a and x.

The smallest power of a in the three monomials is 1.

The smallest power of x in the three monomials is 2.

The monomial of common literals with the smallest powers is ax^2 .

Hence, the greatest common factor is $2ax^2$.

Q.6) $9x^2$, $15x^2y^3$, $6xy^2$ and $21x^2y^2$

Soln.:

The numerical coefficients of the given monomials are 9, 15, 6 and 21.

The greatest common factor of 9, 15, 6 and 21 is 3.

The common literal appearing in the three monomials is x.

The smallest power of x in the four monomials is 1.

The monomial of common literals with the smallest powers is x.

Hence, the greatest common factor is $3x$.

Q.7) $4a^2b^3$, $-12a^3b$, $18a^4b^3$

Soln.:

The numerical coefficients of the given monomials are 4, -12 and 18.

The greatest common factor of 4, -12 and 18 is 2.

The common literals appearing in the three monomials are a and b.

The smallest power of a in the three monomials is 2.

The smallest power of b in the three monomials is 1.

The monomial of the common literals with the smallest powers is a^2b .

Hence, the greatest common factor is $2a^2b$.

Q.8) $6x^2y^2$, $9xy^3$, $3x^3y^2$

Soln.:

The numerical coefficients of the given monomials are 6, 9 and 3.

The greatest common factor of 6, 9 and 3 is 3.

The common literals appearing in the three monomials are x and y.

The smallest power of x in the three monomials is 1.

The smallest power of y in the three monomials is 2.

The monomial of common literals with the smallest powers is xy^2 .

Hence, the greatest common factor is $3xy^2$.

Q.9) a^2b^3 , a^3b^2

Soln.:

The numerical literals in the three monomials are a and b.

The smallest power of x in the three monomials is 2.

The smallest power of y in the three monomials is 2.

The monomial of common literals with the smallest powers is a^2b^2 .

Hence, the greatest common factor is a^2b^2 .

Q.10) $36a^2b^2c^4, 54a^5c^2, 90a^4b^2c^2$

Soln.:

The numerical coeff. of the given monomials are 36, 54, and 90.

The greatest common factors of 36, 54, and 90 is 18.

The common literals appearing in the three monomials are a and c.

The smallest power of a in the three monomials is 2.

The smallest power of c in the three monomials is 2.

The monomial of common literals with the smallest powers is a^2c^2 .

Hence, the greatest common factor is $18a^2c^2$.

Q.11) $x^3, -yx^2$

Soln.:

The common literal appearing in the two monomials is X.

The smallest power of X in both the monomials is 2.

Hence, the greatest common factor is x^2 .

Q.12) $15a^3, -45a^2, -150a$

Soln.:

The numerical coeff. of the given monomials are -15, -45 and -150.

The greatest common factor of 15, -45 and -150 is 15.

The common literal appearing in the three monomials is a.

The smallest power of a in the three monomials is 1.

Hence, the greatest common factor is 15a.

Q.13) $2x^3y^2, 10x^2y^3, 14xy$

Soln.:

The numerical coeff. of the given monomials are 2, 10 and 14.

The greatest common factor of 2, 10 and 14 is 2.

The common literals appearing in the three monomials are x and y.

The smallest power of X in the three monomials is 1.

The smallest power of y in the three monomials is 1.

The monomials of common literals with the smallest power is xy.

Hence, the greatest common factor is 2xy.

Q.14) $14x^3y^5, 10x^5y^3, 2x^2y^2$

Soln.:

The numerical coeff. of the given monomials are 14, 10 and 2.

The greatest common factor of 14, 10 and 2 is 2.

The common literals appearing in the three monomials are x and y.

The smallest power of X in the three monomials is 2.

The smallest power of Y in the three monomials is 2.

The monomials of common literals with the smallest powers is x^2y^2 .

Hence, the greatest common factor is $2x^2y^2$.

Find the greatest common factor of the terms in each of the following expressions :

Q.15) $5a^4 + 10a^3 - 15a^2$

Soln.:

The numerical coeff. of the given monomials are $5a^4$, $10a^3$, and $15a^2$.

The greatest common factor of $5a^4$, $10a^3$, and $15a^2$ is 5.

The common literal appearing in the three monomials is a.

The smallest power of a in the three monomials is 2.

The monomials of common literals with the smallest powers is a^2 .

Hence, the greatest common factor is $5a^2$.

Q.16) $2xyz + 3x^2y + 4y^2$

Soln.:

The numerical coeff. of the given monomials are $2xyz$, $3x^2y$ and $4y^2$.

The greatest factor of $2xyz$, $3x^2y$ and $4y^2$ is 1.

The common literal appearing in the three monomials is y.

The smallest power of y in the three monomials is 1.

The monomials of common literals with the smallest power is y.

Hence, the greatest common factor is y.

Q.17) $3a^2b^2 + 4b^2c^2 + 12a^2b^2c^2$

Soln.:

The numerical coeff. of the given monomials are $3a^2b^2$, $4b^2c^2$ and $12a^2b^2c^2$.

The greatest common factor of $3a^2b^2$, $4b^2c^2$ and $12a^2b^2c^2$ is 1.

The common literal appearing in the three monomials is b.

The smallest power of b in the three monomials is 2.

The monomials of common literals with the smallest powers is b^2 .

Hence, the greatest common factor is b^2 .