RD SHARMA
Solutions
Class 8 Maths
Chapter 6
Ex *6.3*

Find each of the following products: (1-8)

Q1) $5x^2 \times 4x^3$

Solution:

To multiply algebraic expressions, we use commutative and associative laws along with the laws of indices. However, use of these laws is subject to their applicability in the given expressions.

In the present problem, to perform the multiplication, we can proceed as follows:

$5x^2 \times 4x^3$
$= (5 \times 4) \times (x^2 \times x^3)$

$= 20x^5 \qquad (\because a^m \times a^n = a^{m+n})$

Thus, the answer is $20x^5$.

Q2) $-3a^2 \times 4b^4$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, $a^m \times a^n = a^{m+n}$, wherever applicable.

We have:

$-3a^2 \times 4b^4$
$= (-3 \times 4) \times (a^2 \times b^4)$

$= -12a^2b^4$

Thus, the answer is $-12a^2b^4$.

Q3) $(-5xy) \times (-3x^2yz)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, $a^m \times a^n = a^{m+n}$, wherever applicable.

We have:

$(-5xy) \times (-3x^2yz)$
$= [(-5) \times (-3)] \times (x \times x^2) \times (y \times y) \times z$

$= 15 \times (x^{1+2}) \times (y^{1+1}) \times z$

$= 15x^3y^2z$

Thus, the answer is $15x^3y^2z$.

Q4) $\frac{1}{2}xy \times \frac{2}{3}x^2yz^2$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$\frac{1}{2}xy \times \frac{2}{3}x^2yz^2$
$= (\frac{1}{4} \times \frac{2}{3}) \times (x \times x^2) \times (y \times y) \times z^2$

$= (\frac{1}{4} \times \frac{2}{3}) \times (x^{1+2}) \times (y^{1+1}) \times z^2$

$= \frac{1}{6}x^3y^2z^2$

Thus, the answer is $\frac{1}{6}x^3y^2z^2$.

Q5) $(-\frac{7}{5}xy^2z) \times (\frac{13}{3}x^2yz^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-\frac{7}{5}xy^2z) \times (\frac{13}{3}x^2yz^2)$
$= (-\frac{7}{5} \times \frac{13}{3}) \times (x \times x^2) \times (y \times y) \times (z \times z^2)$

$= (-\frac{7}{5} \times \frac{13}{3}) \times (x^{1+2}) \times (y^{2+1}) \times (z^{1+2})$

$= -\frac{91}{15}x^3y^3z^3$

Thus, the answer is $-\frac{91}{15}x^3y^3z^3$.

Q6) $(-\frac{24}{25}x^3z) \times (-\frac{15}{16}xz^2y)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-\frac{24}{25}x^3z) \times (-\frac{15}{16}xz^2y)$
$= [(-\frac{24}{25} \times (-\frac{15}{16})] \times (x^3 \times x) \times (z \times z^2) \times y$

$= [(-\frac{24}{25} \times (-\frac{15}{16})] \times (x^{3+1}) \times (z^{1+2}) \times y$

$= \frac{9}{10}x^4yz^3$

Thus, the answer is $\frac{9}{10}x^4yz^3$.

Q7) $(-\frac{1}{27}a^2b^2) \times (\frac{9}{2}a^3b^2c^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-\frac{1}{27}a^2b^2) \times (\frac{9}{2}a^3b^2c^2)$
$= [(-\frac{1}{27} \times (\frac{9}{2})] \times (a^2 \times a^3) \times (b^2 \times b^2) \times c^2$

$= [(-\frac{1}{27} \times (\frac{9}{2})] \times (a^{2+3}) \times (b^{2+2}) \times c^2$

$= -\frac{1}{6}a^5b^4c^2$

Thus, the answer is $-\frac{1}{6}a^5b^4c^2$.

Q8) $(-7xy) \times (\frac{1}{4}x^2yz)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

$(-7xy) \times (\frac{1}{4}x^2yz)$
$= (-7 \times \frac{1}{4}) \times (x \times x^2) \times (y \times y) \times z$

$= (-7 \times \frac{1}{4}) \times (x^{1+2}) \times (y^{1+1}) \times z$

$= -\frac{7}{4}x^3y^2z$

Thus, the answer is $-\frac{7}{4}x^3y^2z$.

Find each of the following products: (9-17)

Q9) $(7ab) \times (-5ab^2c) \times (6abc^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(7ab) \times (-5ab^2c) \times (6abc^2)$
$= [7 \times (-5) \times 6] \times (a \times a \times a) \times (b \times b^2 \times b) \times (c \times c^2)$

$= [7 \times (-5) \times 6] \times (a^{1+1+1}) \times (b^{1+2+1}) \times (c^{1+2})$

$= -210a^3b^4c^3$

Thus, the answer is $-210a^3b^4c^3$.

Q10) $(-5a) \times (-10a^2) \times (-2a^3)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-5a) \times (-10a^2) \times (-2a^3)$
$= [(-5) \times (-10) \times (-2)] \times (a \times a^2 \times a^3)$

$= [(-5) \times (-10) \times (-2)] \times (a^{1+2+3})$

$= -100a^6$

Thus, the answer is $-100a^6$.

Q11) $(-4x^2) \times (-6xy^2) \times (-3yz^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-4x^2) \times (-6xy^2) \times (-3yz^2)$
$= [(-4) \times (-6) \times (-3)] \times (x^2 \times x) \times (y^2 \times y) \times z^2$

$= [(-4) \times (-6) \times (-3)] \times (x^{2+1}) \times (y^{2+1}) \times z^2$

$= -72x^3y^3z^2$

Thus, the answer is $-72x^3y^3z^2$.

Q12) $(-\frac{2}{7}a^4) \times (-\frac{3}{4}a^2b) \times (-\frac{14}{5}b^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-\frac{2}{7}a^4) \times (-\frac{3}{4}a^2b) \times (-\frac{14}{5}b^2)$ $[(-\frac{2}{7}) \times (-\frac{3}{4}) \times (-\frac{14}{5})] \times (a^4 \times a^2) \times (b \times b^2)$

$= [-(\frac{2}{7} \times \frac{3}{4} \times \frac{14}{5})] \times (a^{4+2}) \times (b^{1+2})$

$= -\frac{3}{5}a^6b^3$

Thus, the answer is $-\frac{3}{5}a^6b^3$.

Q13) $(\frac{7}{9}ab^2) \times (\frac{15}{7}ac^2b) \times (-\frac{3}{5}a^2c)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{7}{9}ab^2) \times (\frac{15}{7}ac^2b) \times (-\frac{3}{5}a^2c)$

$= [(\frac{7}{9}) \times (\frac{15}{7}) \times (-\frac{3}{5})] \times (a \times a \times a^2) \times (b^2 \times b) \times (c^2 \times c)$

$= [\frac{7}{9} \times \frac{15}{7} \times (-\frac{3}{5})] \times (a^{1+1+2}) \times (b^{2+1}) \times (c^{2+1})$

$= -a^4b^3c^3$

Thus, the answer is $-a^4b^3c^3$.

Q14) $(\frac{4}{3}u^2vw) \times (-5uvw^2) \times (\frac{1}{3}v^2wu)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{4}{3}u^2vw) \times (-5uvw^2) \times (\frac{1}{3}v^2wu)$

$= [(\frac{4}{3}) \times (-5) \times (\frac{1}{3})] \times (u^2 \times u \times u) \times (v \times v \times v^2) \times (w \times w^2 \times w)$

$= [\frac{4}{3} \times (-5) \times \frac{1}{3}] \times (u^{2+1+1}) \times (v^{1+1+2}) \times (w^{1+2+1})$

$= -\frac{20}{9}u^4v^4w^4$

Thus, the answer is $-\frac{20}{9}u^4v^4w^4$.

Q15) $(0.5x) \times (\frac{1}{3}xy^2z^4) \times (24x^2yz)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(0.5x) \times (\frac{1}{3}xy^2z^4) \times (24x^2yz)$

$= [0.5x \times \frac{1}{3} \times 24] \times (x \times x \times x^2) \times (y^2 \times y) \times (z^4 \times z)$

$= [0.5x \times \frac{1}{3} \times 24] \times (x^{1+1+2}) \times (y^{2+1}) \times (z^{4+1})$

$= 4x^4y^3z^5$

Thus, the answer is $4x^4y^3z^5$.

Q16) $(\frac{4}{3}pq^2) \times (-\frac{1}{4}p^2r) \times (16p^2q^2r^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{4}{3}pq^2) \times (-\frac{1}{4}p^2r) \times (16p^2q^2r^2)$
$= [\frac{4}{3} \times (-\frac{1}{4}) \times 16] \times (p \times p^2 \times p^2) \times (q^2 \times q^2) \times (r \times r^2)$

$= [\frac{4}{3} \times (-\frac{1}{4}) \times 16] \times (p^{1+2+2}) \times (q^{2+2}) \times (r^{1+2})$

$= -\frac{16}{3}p^5q^4r^3$

Thus, the answer is $-\frac{16}{3}p^5q^4r^3$.

Q17) $(2.3xy) \times (0.1x) \times (0.16)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(2.3xy) \times (0.1x) \times (0.16)$
$= (2.3 \times 0.1 \times 0.16) \times (x \times x) \times y$

$= (2.3 \times 0.1 \times 0.16) \times (x^{1+1}) \times y$

$= 0.0368x^2y$

Thus, the answer is $0.0368x^2y$.

Express each of the following products as a monomials and verify the result in each case for x = 1: (18-26)

Q18) $(3x) \times (4x) \times (-5x)$

Solution:

We have to find the product of the expression in order to express it as a monomial.

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(3x) \times (4x) \times (-5x)$
$= (3 \times 4 \times (-5)) \times (x \times x \times x)$

$= (3 \times 4 \times (-5)) \times (x^{1+1+1})$

$= -60x^3$

Substituting x = 1 in LHS, we get:

LHS = $(3x) \times (4x) \times (-5x)$

$= (3 \times 1) \times (4 \times 1) \times (-5 \times 1)$

= –60

Putting x = 1 in RHS, we get:

RHS = $-60x^3$

$= -60(1)^3$

$= -60 \times 1$

= –60

Since, LHS = RHS for x =1; therefore, the result is correct.

Thus, the answer is $-60x^3$.

Q19) $(4x^2) \times (-3x) \times (\frac{4}{5}x^3)$

Solution:

We have to find the product of the expression in order to express it as a monomial.

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(4x^2) \times (-3x) \times (\frac{4}{5}x^3)$
$= (4 \times (-3) \times \frac{4}{5}) \times (x^2 \times x \times x^3)$

$= (4 \times (-3) \times \frac{4}{5}) \times (x^{2+1+3})$

$= -\frac{48}{5}x^6$

$\therefore (4x^2) \times (-3x) \times (\frac{4}{5}x^3)$

$= -\frac{48}{5}x^6$

Substituting x = 1 in LHS, we get:

LHS = $(4x^2) \times (-3x) \times (\frac{4}{5}x^3)$

$= (4 \times 1^2) \times (-3 \times 1) \times (\frac{4}{5} \times 1^3)$

$= 4 \times (-3) \times \frac{4}{5}$

$= -\frac{48}{5}$

Putting x = 1 in RHS, we get:

RHS = $-\frac{48}{5}x^6$

$= -\frac{48}{5} \times 1^6$

$= -\frac{48}{5}$

Since, LHS = RHS for x = 1; therefore, the result is correct

Thus, the answer is $-\frac{48}{5}x^6$.

Q20) $(5x^4) \times (x^2)^3 \times (2x)^2$

Solution:

We have to find the product of the expression in order to express it as a monomial.

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(5x^4) \times (x^2)^3 \times (2x)^2$
$= (5x^4) \times (x^6) \times (2^2 \times x^2)$

$= (5 \times 2^2) \times (x^4 \times x^6 \times x^2)$

$= (5 \times 2^2) \times (x^{4+6+2})$

$= 20x^{12}$

$\therefore (5x^4) \times (x^2)^3 \times (2x)^2 = 20x^{12}$
Substituting x = 1 in LHS, we get:

LHS = $(5x^4) \times (x^2)^3 \times (2x)^2$

$= (5 \times 1) \times (1^6) \times (2)^2$

$= 5 \times 1 \times 4$

$= 20$

Put x = 1 in RHS, we get:

RHS = $20x^{12}$

= 20×1^{12}

= 20×1

= 20

Since, LHS = RHS for x = 1; therefore, the result is correct

Thus, the answer is $20x^{12}$

Q21) $(x^2)^3 \times (2x) \times (-4x) \times (5)$

Solution:

We have to find the product of the expression in order to express it as a monomial.

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(x^2)^3 \times (2x) \times (-4x) \times 5$
$= (x^6) \times (2x) \times (-4x) \times 5$

$= (2 \times (-4) \times 5) \times (x^6 \times x \times x)$

$= (2 \times (-4) \times 5) \times (x^{6+1+1})$

$= -40x^8$

$\therefore (x^2)^3 \times (2x) \times (-4x) \times 5 = -40x^8$
Substituting x = 1 in LHS, we get:

LHS = $(x^2)^3 \times (2x) \times (-4x) \times 5$

$= (1^2)^3 \times (2 \times 1) \times (-4 \times 1) \times 5$

$= 1^6 \times 2 \times (-4) \times 5$

= -40

Put x = 1 in RHS, we get:

RHS = $-40x^8$

$= -40 \times 1^8$

$= -40 \times 1$

= -40

Since, LHS = RHS for x = 1; therefore, the result is correct

Thus, the answer is $-40x^8$

Q22) Write down the product of $-8x^2y^6$ and $-20xy$. **Verify the product for x = 2.5, y = 1.**

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-8x^2y^6) \times (-20xy)$
$= [(-8) \times (-20)] \times (x^2 \times x) \times (y^6 \times y)$

$= [(-8) \times (-20)] \times (x^{2+1}) \times (y^{6+1})$

$= -160x^3y^7$

$\therefore (-8x^2y^6) \times (-20xy) = -160x^3y^7$
Substituting x = 2.5 and y = 1 in LHS, we get:

LHS = $(-8x^2y^6) \times (-20xy)$

$= (-8(2.5)^2(1)^6) \times (-20(2.5)(1))$

$= (-8(6.25)(1)) \times (-20(2.5)(1))$

$= (-50) \times (-50)$

= 2500

Substituting x = 2.5 and y = 1 in RHS, we get:

RHS $= -160x^3y^7$

$= -160(2.5)^3(1)^7$

$= -160(15.625)(1)$

= 2500

Because LHS is equal to RHS, the result is correct.

Thus, the answer is $-160x^3y^7$

Q23) Evaluate $(3.2x^6y^3) \times (2.1x^2y^2)$ when x = 1 and y = 0.5.

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(3.2x^6y^3) \times (2.1x^2y^2)$
$= (3.2 \times 2.1) \times (x^6 \times x^2) \times (y^3 \times y^2)$

$= (3.2 \times 2.1) \times (x^{6+2}) \times (y^{3+2})$

$= 6.72x^8y^5$

$\therefore (3.2x^6y^3) \times (2.1x^2y^2) = 6.72x^8y^5$
Substituting x = 1 and y = 0.5 in the result, we get:

$6.72x^8y^5$
$= 6.72(1)^8(0.5)^5$

$= 6.72 \times 1 \times 0.03125$

= 0.21

Thus, the answer is 0.21.

Q24) Find the value of $(5x^6) \times (-1.5x^2y^3) \times (-12xy^2)$ when x = 1, y = 0.5.

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(5x^6) \times (-1.5x^2y^3) \times (-12xy^2)$
$= [5 \times (-1.5) \times (-12)] \times (x^6 \times x^2 \times x) \times (y^3 \times y^2)$

$= [5 \times (-1.5) \times (-12)] \times (x^{6+2+1}) \times (y^{3+2})$

$= 90x^9y^5$

$\therefore (5x^6) \times (-1.5x^2y^3) \times (-12xy^2) = 90x^9y^5$
Substituting x = 1 and y = 0.5 in the result, we get:

$90x^9y^5$
$= 90(1)^9(0.5)^5$

$= 90 \times 1 \times 0.03125$

= 2.8125

Thus, the answer is 2.8125.

Q25) Evaluate when $(2.3a^5b^2) \times (1.2a^2b^2)$ when a = 1 and b = 0.5.

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(2.3a^5b^2) \times (1.2a^2b^2)$
$= (2.3 \times 1.2) \times (a^5 \times a^2) \times (b^2 \times b^2)$

$= (2.3 \times 1.2) \times (a^{5+2}) \times (b^{2+2})$

$= 2.76a^7b^4$

$\therefore (2.3a^5b^2) \times (1.2a^2b^2) = 2.76a^7b^4$
Substituting a = 1 and b = 0.5 in the result, we get:

$2.76a^7b^4$
$= 2.76(1)^7(0.5)^4$

$= 2.76 \times 1 \times 0.0625$

= 0.1725

Thus, the answer is 0.1725.

Q26) Evaluate for $(-8x^2y^6) \times (-20xy)$ x = 2.5 and y = 1.

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-8x^2y^6) \times (-20xy)$
$= [(-8) \times (-20)] \times (x^2 \times x) \times (y^6 \times y)$

$= [(-8) \times (-20)] \times (x^{2+1}) \times (y^{6+1})$

$= 160x^3y^7$

$\therefore (-8x^2y^6) \times (-20xy) = 160x^3y^7$
Substituting x = 2.5 and y =1 in the result, we get:

$160x^3y^7$
$= 160(2.5)^3(1)^7$

$= 160 \times 15.625$

= 2500

Thus, the answer is 2500.

Express each of the following products as a monomials and verify the result for x = 1, y =2 : (27-31)

Q27) $(-xy^3) \times (yx^3) \times (xy)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-xy^3) \times (yx^3) \times (xy)$
$= (-1) \times (x \times x^3 \times x) \times (y^3 \times y \times y)$

$= (-1) \times (x^{1+3+1}) \times (y^{3+1+1})$

$= -x^5y^5$

To verify the result, we substitute x = 1 and y = 2 in LHS; we get:

LHS = $(-xy^3) \times (yx^3) \times (xy)$

$= [(-1) \times 1 \times 2^3] \times (2 \times 1^3) \times (1 \times 2)$

$= [(-1) \times 1 \times 8] \times (2 \times 1) \times 2$

$= (-8) \times 2 \times 2$

$= -32$

Substitute x = 1 and y = 2 in RHS, we get:

RHS $= -x^5y^5$

$= (-1)(1)^5(2)^5$

$= (-1) \times 1 \times 32$

$= -32$

Because LHS is equal to RHS, the result is correct.

Thus, the answer is $-x^5y^5$

Q28) $(\frac{1}{8}x^2y^4) \times (\frac{1}{4}x^4y^2) \times (xy) \times 5$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{1}{8}x^2y^4) \times (\frac{1}{4}x^4y^2) \times (xy) \times 5$
$= (\frac{1}{8} \times \frac{1}{4} \times 5) \times (x^2 \times x^4 \times x) \times (y^4 \times y^2 \times y)$

$= (\frac{1}{8} \times \frac{1}{4} \times 5) \times (x^{2+4+1}) \times (y^{4+2+1})$

$= \frac{5}{32}x^7y^7$

To verify the result, we substitute x = 1 and y = 2 in LHS; we get:

LHS $= (\frac{1}{8}x^2y^4) \times (\frac{1}{4}x^4y^2) \times (xy) \times 5$

$= (\frac{1}{8} \times (1)^2 \times (2)^4) \times (\frac{1}{4} \times (1)^4 \times (2)^2) \times (1 \times 2) \times 5$

$= (\frac{1}{8} \times 1 \times 16) \times (\frac{1}{4} \times 1 \times 4) \times (1 \times 2) \times 5$

$= 2 \times 1 \times 2 \times 5$

$= 20$

Substituting x = 1 and y = 2 in RHS, we get:

RHS $= \frac{5}{32}x^7y^7$

$= \frac{5}{32}(1)^7(2)^7$

$= \frac{5}{32} \times 1 \times 128$

$= 20$

Because LHS is equal to RHS, the result is correct.

Thus, the answer is $\frac{5}{32}x^7y^7$.

Q29) $(\frac{2}{5}a^2b) \times (-15b^2ac) \times (-\frac{1}{2}c^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{2}{5}a^2b) \times (-15b^2ac) \times (-\frac{1}{2}c^2)$
$= [\frac{2}{5} \times (-15) \times (-\frac{1}{2})] \times (a^2 \times a) \times (b \times b^2) \times (c \times c^2)$

$= [(\frac{2}{5} \times (-15) \times (-\frac{1}{2})] \times (a^{2+1}) \times (b^{1+2}) \times (c^{1+2})$

$= 3a^3b^3c^3$

Since the expression doesn't consist of the variables x and y.

Therefore, the result cannot be verified for x = 1 and y = 2

Thus, the answer is $3a^3b^3c^3$.

Q30) $(-\frac{4}{7}a^2b) \times (-\frac{2}{3}b^2c) \times (-\frac{7}{6}c^2a)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(-\frac{4}{7}a^2b) \times (-\frac{2}{3}b^2c) \times (-\frac{7}{6}c^2a)$

$= [(-\frac{4}{7}) \times (-\frac{2}{3}) \times (-\frac{7}{6})] \times (a^2 \times a) \times (b \times b^2) \times (c \times c^2)$

$= [(-\frac{4}{7}) \times (-\frac{2}{3}) \times (-\frac{7}{6})] \times (a^{2+1}) \times (b^{1+2}) \times (c^{1+2})$

$= -\frac{4}{9}a^3b^3c^3$

Since the expression doesn't consist of the variables x and y.

Therefore, the result cannot be verified for x = 1 and y = 2

Thus, the answer is $-\frac{4}{9}a^3b^3c^3$.

Q31) $(\frac{4}{9}abc^3) \times (-\frac{27}{5}a^3b^2) \times (-8b^3c)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{4}{9}abc^3) \times (-\frac{27}{5}a^3b^2) \times (-8b^3c)$

$= [(\frac{4}{9}) \times (-\frac{27}{5}) \times (-8)] \times (a \times a^3) \times (b \times b^2 \times b^3) \times (c^3 \times c)$

$= [(\frac{4}{9}) \times (-\frac{27}{5}) \times (-8)] \times (a^{1+3}) \times (b^{1+2+3}) \times (c^{3+1})$

$= \frac{96}{5}a^4b^6c^4$

Since the expression doesn't consist of the variables x and y.

Therefore, the result cannot be verified for x = 1 and y = 2

Thus, the answer is $\frac{96}{5}a^4b^6c^4$

Evaluate each of the following when x = 2, y = -1.

Q32) $(2xy) \times (\frac{x^2y}{4}) \times (x^2) \times (y^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(2xy) \times (\frac{x^2y}{4}) \times (x^2) \times (y^2)$

$= (2 \times \frac{1}{4}) \times (x \times x^2 \times x^2) \times (y \times y \times y^2)$

$= (2 \times \frac{1}{4}) \times (x^{1+2+2}) \times (y^{1+1+2})$

$= \frac{1}{2}x^5y^4$

Substituting x = 2 and y = -1 in the result, we get:

$\frac{1}{2}x^5y^4$
$= \frac{1}{2}(2)^5(-1)^4$

$= \frac{1}{2} \times 32 \times 1$

= 16

Thus, the answer is 16.

Q33) $(\frac{3}{5}x^2y) \times (\frac{-15}{4}xy^2) \times (\frac{7}{9}x^2y^2)$

Solution:

To multiply algebraic expressions, we can use commutative and associative laws along with the law of indices, that is, $a^m \times a^n = a^{m+n}$

We have:

$(\frac{3}{5}x^2y) \times (-\frac{15}{4}xy^2) \times (\frac{7}{9}x^2y^2)$
$= (\frac{3}{5} \times (-\frac{15}{4}) \times \frac{7}{9}) \times (x^2 \times x \times x^2) \times (y \times y^2 \times y^2)$

$= (\frac{3}{5} \times (-\frac{15}{4}) \times \frac{7}{9}) \times (x^{2+1+2}) \times (y^{1+2+2})$

$= -\frac{7}{4}x^5y^5$

Substituting x = 2 and y = -1 in the result, we get:

$-\frac{7}{4}x^5y^5$
$= -\frac{7}{4}(2)^5(-1)^5$

$= (-\frac{7}{4}) \times 32 \times (-1)$

= 56

Thus, the answer is 56.