Important Questions for Class 8 Maths Chapter 8: Chapter 8 of Class 8 Maths, Algebraic Expressions, and Identities, introduces key concepts such as algebraic expressions, terms, factors, coefficients, and the classification of expressions (monomials, binomials, and polynomials). It covers the addition, subtraction, and multiplication of expressions.

Important questions focus on simplifying expressions, verifying identities, and applying them to solve problems. Practice is crucial for mastering operations on expressions and using identities in real-life problem-solving contexts. This chapter lays a foundation for advanced algebra, making conceptual clarity essential for higher classes.

Important Questions for Class 8 Maths Chapter 8 Overview

Chapter 8 of Class 8 Maths, Algebraic Expressions and Identities, is crucial as it forms the foundation for advanced algebra. This chapter helps students understand the structure and manipulation of algebraic expressions, including terms, coefficients, and their classifications (monomials, binomials, and polynomials).

It emphasizes essential algebraic identities, which simplify complex expressions and solve practical problems efficiently. Important questions focus on simplifying, verifying, and applying these identities. Mastering this chapter enhances logical reasoning and problem-solving skills, preparing students for competitive exams and higher mathematical studies.

Important Questions for Class 8 Maths Chapter 8 Algebraic Expressions and Identities

Below is the Important Questions for Class 8 Maths Chapter 8 Algebraic Expressions and Identities -

Question 1. Find the terms and their coefficients for each of the following expressions.

(i) $5xyz^2 – 3zy$

(ii) $1 + x + x^2$

(iii) $4x^2y^2 – 4x^2y^2z^2 + z^2$

(iv) $3 - pq + qr – rp$

(v) $x/2 + y/2 – xy$

(vi) $0.3a – 0.6ab + 0.5b$

Answer 1. The terms and coefficients are given below,

Terms	Coefficient
(i) $5xyz^2$, $-3zy$	5, -3
(ii) 1, x, x^2	1, 1, 1
(iii) $4x^2y^2$, $-4x^2y^2z^2$, z^2	4, -4, 1
(iv) 3, -pq, qr, -rp	3, -1, 1, -1
(v) x/2, y/2, -xy	1/2, 1/2, -1
(vi) 0.3a, -0.6ab, 0.5b	0.3, -0.6, 0.5

Question 2. Classify the following polynomials as monomials, binomials, and trinomials. Also, state the

polynomials do not fall in any of these three categories?

$x + y$, 1000, $x + x^2 + x^3$, $7 + y + 5x$, $2y – 3y^2$, $2y – 3y^2 + 4y^3$, $5x – 4y + 3xy$, $4z – 15z^2$, $ab + bc + cd + da$, pqr,

$p^2q + pq^2$, $2p + 2q$,

Answer 2. The classified terms are given below,

Monomials- 1000, pqr

Binomials- $x + y$, $2y – 3y^2$, $4z – 15z^2$, $p^2q + pq^2$, $2p + 2q$

Trinomials- $x + x^2 + x^3$, $7 + y + 5x$, $2y – 3y^2 + 4y^3$, $5x – 4y + 3xy$

Polynomials that do not fall in any of these categories are $x + y$, $x + x^2 + x^3$, $ab + bc + cd + da$

Question 3. Add the following.

(i) $ab – bc$, $bc – ca$, $ca – ab$

(ii) $a – b + ab$, $b – c + bc$, $c – a + ac$

(iii) $2p^2q^2 – 3pq + 4$, $5 + 7pq – 3p^2q^2$

(iv) $l^2 + m^2$, $m^2 + n^2$, $n^2 + l^2$, $2lm + 2mn + 2nl$

Answer 3. (i) (ab – bc) + (bc – ca) + (ca – ab)

= ab – bc + bc – ca + ca – ab

= ab-ab-bc+bc-ca+ca

= 0

(ii) (a – b + ab) + (b – c + bc) + (c – a + ac)

= a – b + ab + b – c + bc + c -a +ac

= a – a -b + b + ab – c + c + bc + ac

= ab + bc + ac

(iii) ($2p^2q^2 – 3pq + 4$) + ($5 + 7pq – 3p^2q^2$)

= $2p^2q^2 – 3pq + 4 + 5 + 7pq – 3p^2q^2$

= $2p^2q^2 – 3p^2q^2 + 7pq – 3pq + 4 + 5$

= $-1p^2q^2 + 4pq + 9$

= $4pq + 9 – p^2q^2$

(iv) ($l^2 + m^2$) + ($m^2 + n^2$) + ($n^2 + l^2$) + ($2lm + 2mn + 2nl$)

= $l^2 + m^2 + m^2 + n^2 + n^2 + l^2 + 2lm + 2mn + 2nl$

= $l^2 + l^2 + m^2 + m^2 + n^2 + n^2 + 2lm + 2mn + 2nl$

= $2l^2 + 2m^2 + 2n^2 + 2lm + 2mn + 2nl$

= $2(l^2 + m^2 + n^2 + lm + mn + nl)$

Question 4. Subtract the following.

(i) $4a – 7ab + 3b + 12$ from $12a – 9ab + 5b – 3$

(ii $3xy + 5yz – 7zx$ from $5xy – 2yz – 2zx + 10xyz$

(iii) $4p^2q – 3pq + 5pq^2 – 8p + 7q – 10$ from $18 – 3p – 11q + 5pq – 2pq2 + 5p^2q$

Answer 4.

(i) ($12a – 9ab + 5b – 3$) – ($4a – 7ab + 3b + 12$)

= 12a – 9ab + 5b – 3 – 4a + 7ab – 3b – 12

= 12a – 4a – 9ab + 7ab + 5b –3b – 3 – 12

= 8a – 2ab + 2b – 15

(ii) (5xy – 2yz – 2zx + 10xyz) – (3xy + 5yz – 7zx)

= 5xy – 2yz – 2zx + 10xyz – 3xy – 5yz + 7zx

= 5xy – 3xy – 2yz – 5yz – 2zx + 7zx + 10xyz

= 2xy – 7yz + 5zx + 10xyz

(iii) (18 – 3p – 11q + 5pq – 2pq2+ $5p^2q$) – ($4p^2q$ – 3pq + $5pq^2$– 8p + 7q – 10)

= 18 – 3p – 11q + 5pq – 2pq2 + $5p^2q$ – $4p^2q$ + 3pq – $5pq^2$ + 8p – 7q + 10

= 18 + 10 – 3p + 8p – 11q – 7q + 5pq + 3pq – 2pq2 – $5pq^2$ + $5p^2q$ – $4p^2q$

= 28 + 5p – 18q + 8pq – $7pq^2$ + p^2q

Question 5. Multiply the following.

(i) – $7pq^2r^3$, – $13p^3q^2r$

(ii) $3x^2y^2z^2$, 17xyz

(iii) $15xy^2$, $17yz^2$

(iv) –$5a^2bc$, 11ab, 13abc^2

(v) (pq – 2r), (pq – 2r)

(vi) ($3/2p^2$ + $2/3q^2$), ($2p^2$ –$3q^2$)

Answer 5. (i) (– $7pq^2r^3$) x (– $13p^3q^2r$)

= 91P4 q4 r4

(ii) ($3x^2y^2z^2$) x (17xyz)

= $51x^3y^3z^3$

(iii) ($15xy^2$) x ($17yz^2$)

= $255xy^3z^2$

(iv) ($-5a^2bc$) x (11ab) x ($13abc^2$)

= $-715a^4b^3c^3$

(v) (pq – 2r) x (pq – 2r)

= pq (pq – 2r) – 2r(pq – 2r)

= $p^2q^2 – 2pqr – 2rpq + 4r^2$

= $p^2q^2 – 4pqr + 4r^2$

(vi) (3 p^2 + 2 q^2) x ($2p^2 – 3q^2$)

2 3

= $3p^2$ x $2p^2$ – 3 p^2 x $3q^2$ + $2q^2$ x $2p^2$ – $2q^2$ x $3q^2$

2 2 3 3

= 6P4 – $9p^2q^2 + 4q^2p^2$ – 6q4

2 2 3 3

= 3P4 – $9p^2q^2 + 4q^2p^2$ – 2q4

2 3

Question 6. Which term is the like term similar to $24a^2bc$?

(a) 13 × 8a × 2b × c × a

(b) 8 × 3 × a × b × c

(c) 3 × 8 × a × b × c × c

(d) 3 × 8 × a × b × b × c

Answer 6. Option (a)

Explanation: To find out the similar term as $24a^2bc$, let us find the product of each of the equations,

1. 13 × 8a × 2b × c × a = $208a^2bc$
2. 8 × 3 × a × b × c = 24abc
3. 3 × 8 × a × b × c × c = $24abc^2$
4. 3 × 8 × a × b × b × c = $24ab^2c$

Hence, we can get that option (a) is correct.

Question 7. Which of the following is an identity?

(a) $(p + q)^2 = p^2 + q^2$

(b) $p^2 – q^2 = (p – q)^2$

(c) $p^2 – q^2 = p^2 + 2pq – q^2$

(d) $(p + q)^2 = p^2 + 2pq + q^2$

Answer 7. Option (d)

Explanation: The equation $(p + q)^2 = p^2 + 2pq + q^2$ follows the first standard algebraic identity

$(a + b)^2 = a^2 + 2ab + b^2$. The rest of the other options do not follow any of the standard identities. Hence option (d) is correct.

Question 8. Fill in the blanks.

(a) $(x + a) (x + b) = x^2 + (a + b)x +$ _____.

(b) The product of two terms with like signs is a _____ term.

(c) The product of two terms with unlike signs is a _____ term.

(d) (a – b) _____ $= a^2 – 2ab + b^2$

(e) $a^2 – b^2 = (a + b)$ _____.

(f) $(a – b)^2 +$ _____ $= a^2 – b^2$

(g) $(a + b)^2 – 2ab =$ _____ + _____

(h) The product of two polynomials is a _____

(i) The coefficient in – 37abc is _____.

(j) Number of terms in the expression a2 + bc × d is _____

Answer 8.

(a) ab

As per the standard identity 4, $(x + a) (x + b) = x^2 + (a + b)x + ab$

(b) Positive

(c) Negative

(d) ^2 or (a – b)²

As per standard identity 2, (a – b)² = a² – 2ab + b²

(e) (a – b)

As per standard identity 3, (a + b) (a – b) = a² – b²

(f) 2ab – 2b²

Let us solve the equation with x in the blank space. As per identity 2, (a – b)² = a² – 2ab + b².

Hence, a² – 2ab + b² + x = a² – b²

x = a² – b² – a² + 2ab – b²

x = 2ab – 2b²

(g) a² + b²

Using Identity 1 (a + b)² = a² + 2ab + b²,

(a + b)² – 2ab = a² + 2ab + b² – 2ab = a² + b²

(h) Polynomial

(i) -37

(j) 2

Question 9. Solve the below using correct identities.

(a) (48)²

(b) 181² – 19²

(c) 497 × 505

(d) 2.07 × 1.93

Answer 9.

(a) (48)²

= (50 – 2)²

As $(a – b)^2 = a^2 – 2ab + b^2$, hence

$(50 – 2)^2 = (50)^2 – 2 \times 50 \times 2 + (2)^2$

$= 2500 – 200 + 4$

$= 2300 + 4$

$= 2304$

(b) As $a^2 – b^2 = (a – b) (a + b)$

$181^2 – 19^2 = (181 – 19) (181 + 19)$

$= 162 \times 200$

$= 32400$

(c) By using the identity $(x + a) (x + b) = x2 + (a + b) x + ab$

$497 \times 505 = (500 – 3) (500 + 5)$

$= 500^2 + (–3 + 5) \times 500 + (–3) (5)$

$= 250000 + 1000 – 15$

$= 250985$

(d) As $(a + b) (a – b) = a^2 – b^2$

$2.07 \times 1.93 = (2 + 0.07) (2 – 0.07)$

$= 2^2 – 0.07^2$

$= 3.9951$

Question 10. The length of a rectangular box is (x + 9y) and the area is $x^2 + 12xy + 27y^2$. Find the breadth.

Answer 10. Area of a rectangle = length x breadth, hence breadth = area / length.

breadth = $x^2 + 12xy + 27y^2$

(x + 9y)

= $x^2 + 9xy + 3xy + 27y^2$

(x + 9y)

= x (x + 9y) + 3y (x + 9y)

(x + 9y)

breadth = x + 3y

Benefits of Using Important Questions for Class 8 Maths Chapter 8

Using **Important Questions for Class 8 Maths Chapter 8: Algebraic Expressions and Identities** offers several benefits:

Concept Clarity: Focused questions help reinforce fundamental concepts like terms, coefficients, and identities, ensuring better understanding.

Practice with Identities: Questions on identities will improve fluency in using these formulas to simplify expressions.

Problem-Solving Skills: Regular practice enhances analytical thinking and the ability to tackle algebraic problems systematically.

Exam Preparation: Covers common and challenging patterns, helping students score better in exams.

Confidence Boost: Familiarity with diverse problems builds confidence in applying algebraic concepts effectively.

Foundation for Future Studies: Prepares students for advanced algebra in higher classes and competitive exams.