



Brain International School

Vikas Puri, New Delhi

ASSIGNMENT NO. 5

SUBJECT: MATHS

CLASS-VII

OCTOBER, 2025

ALGEBRAIC EXPRESSIONS

Q1. Find the three consecutive even natural numbers, if the first number is x .

Q2. Write the next number in the series:

a) $n, n + 5, n + 10$, _____, _____

b) $x, 4x + 2, 8x + 4, 16x + 6$, _____, _____

c) $5, 12, 19, 26, 33$, _____, _____

Q3. Write the expression for:

a) One fourth of the sum of p and q .

b) Perimeter of a regular hexagon, where s = length of the side of the hexagon.

Q4. Simplify and find the value of expression if $m = (-6)$ and $n = 4$

a) $4m - 3n^2 + 2$

b) $(m - 2mn + 1) + (3m + n - 2)$

Q5) If length of a rectangle is 6 cm more than its breadth. If the length and breadth are represented by x and y respectively, then _____.

a) $6x + y = 6$

b) $x = y - 6$

c) $x + y = 6$

d) $x - y = 6$

Q6) Find the value of $(32 - 4p)$, if $p = (-2)$.

Q7) Consider the series $4, 7, 10, 13, 16$

Which of the following algebraic expressions can generate the above series, for $x = 1, 2, 3, 4$?

a) $7x + 3$

b) $3x + 3$

c) $7x + 4$

d) $3x + 1$

Q8) If $y = (7x + 4) - (3x + 2)$, then find the value of y , for $x = 2$.



ASSIGNMENT NO. 6

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EXPONENTS AND POWERS

Q1) Fill in the blanks:

- a) $(-1)^{79} \times 5^2 =$ _____.
- b) $b \times b \times a \times a \times a \times (-a) =$ _____.
- c) $3^1 \times 6^0 =$ _____.
- d) $(-3)^2 \times (-2)^3 =$ _____.

Q2) 720 expressed as product of powers of its prime factors is

- a) $2^4 \times 3^2 \times 5^1$
- b) $2^4 \times 3^3 \times 5^1$
- c) $2^3 \times 3^2 \times 5^1$
- d) $2^3 \times 3^2 \times 5^2$

Q3) The exponential form of $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$ is

- a) 3^6
- b) 3^7
- c) 7^3
- d) 7^5

Q5) Find the answer using laws of exponents.

- a) $x^3 \times x^4 =$ _____
- b) $a^7 \times a^8 =$ _____
- c) $p^4 \div p^3 =$ _____ = _____
- d) $m^9 \div m^9 =$ _____ = _____
- e) $(y^3)^4 =$ _____
- f) $(n^0)^2 =$ _____

Q6) Express the following in exponential form.

- a) 1728
- b) 2401
- c) 2197
- d) 2048

Q7) Write in standard form:

- a There are 3 zeroes in one thousand
One thousand = 1000 = $10 \times 10 \times 10 = 10^3$
- b There are 7 zeroes in one crore.

- c Distance between Mumbai and Chicago is 14000000 km

- d The cosmos contains approximately 50,000,000,000 galaxies.

- e The human eye blinks an average of 4,200,000 times a year.

Q8) Simplify using laws of exponents:

(i)
$$\frac{3^5 \times 10^5 \times 25^2}{5^7 \times 6^4}$$

(ii)
$$\frac{3^3 \times 2^{10} \times 8^0}{2^7 \times 6^3}$$

ASSERTION-REASONING BASED QUESTIONS

- Assertion: The expression $7x + 3y - 2x$ is a binomial.
Reason: An expression with two terms is called a binomial.
 - Assertion: The terms $5x^2y$ and $-3yx^2$ are like terms.
Reason: Like terms must have the same coefficients to be considered like terms.
 - Assertion: The exponent of a number is always a positive integer.
Reason: Exponents are used to express how many times a number, the base, is multiplied by itself.
 - Assertion: The product of two powers with the same base can be found by adding their exponents.
Reason: When multiplying like bases, each multiplication of the base is additive in terms of exponents.
- (a) Both Assertion and Reason are correct and Reason is the correct explanation of Assertion.
(b) Both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
(c) Assertion is correct but Reason is incorrect.
(d) Assertion is incorrect but Reason is correct.

CASE – STUDY BASED QUESTIONS

Q1) Anushka runs a small stationery shop. She sells notebooks, pens, and pencils. The prices of these items are fixed, with notebooks priced at 25 each, pens at 10 each, and pencils at 5 each. A customer comes in and buys some of these items.

- i) Write the algebraic expression for the total amount of money C the customer spends if they buy x notebooks, y pens, and z pencils.
- ii) If the customer buys 4 notebooks and 3 pens, write down the expression for the remaining budget if they started with ₹200.
- iii) The customer realized that they wanted twice as many pencils as pens. Write an algebraic expression for the total cost of pencils and pens if the number of pens is y and pencils are twice that number. Then, find the total cost if $y = 5$.
- iv) The customer's total bill was 180. If they bought 3 notebooks, 2 pens, and some pencils, form an equation based on this information. Then, determine how many pencils z the customer bought.

Q2) Priya is organizing her bookshelf and decides to stack her collection of comic books. She finds that she can stack the books in layers, where each layer contains 10^2 . She arranges the comic books in five layers, which significantly increases the total number of comic books in the stack.

- i) How many comic books are in one layer?
- ii) What is the total number of comic books in all 5 layers?
- iii) If each comic book has a thickness of 2×10^0 centimeters, what is the total thickness of the stack?
- iv) If Priya decides to add 3×10^3 more comic books to the existing stack, what will be the new total number of comic books?