MATHS

NCERT - NCERT Mathematics(HINGLISH)

ALGEBRAIC EXPRESSIONS

Exercise 12 2

1. Add : (i) $3mn - 5mn, 8mn - 4mn$

(ii) $t - 8tz, 3tz - z, z - t$

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2. Subtract :

(i) $-5y^2$ from y^2

(ii) $6xy$ from -xy

(iii) $(a-b)$ from $(a+b)$

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3. From the sum of $3x-y+11$ and $-y-11$ subtract $3x-y-11$.

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4. What should be added to x^2+xy+y^2 to obtain $2x^2+3xy$?

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5. What should be taken away from $3x^2-4y^2+5xy+20$ to obtain $-x^2-y^2+6xy+20$?

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Solved Examples

1. Identify, in the following expressions, terms which are not constants. Give their numerical coefficients:

$xy + 4, 13 - y^2, 13 - y + 5y^2, 4p^2q - 3pq^2 + 5$

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2. What are the coefficients of x in the following expressions ?

$4x - 3y, 8 - x + y, y^2x - y, 2z - 5xz$

(b) what are the coefficients of y in the following expressions ?

$4x - 3y, 8 - yz, yz^2 + 5, my + m$

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3. State with reasons, which of the following pairs of terms are of like terms and which are of unlike terms : (i) $7x, 12y$ (ii) $15x - 21x$ (iii) $4ab, 7ba$

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4. Collect like terms and simplify the expression : $12m^2 - 9m + 5m - 4m^2 - 7m + 10$

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5. Subtract $24ab - 10b - 18a$ from $30ab - 12b + 14a$.

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6. From the sum of $2y^2 + 3yz$, $-y^2 - yz - z^2$ and $yz + 2z^2$, subtract the sum of $3y^2 - z^2$ and $-y^2 + yz + z^2$

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7. Find the values of the following expressions for $x = 2$. (i) $x + 4$ (ii) $4x - 3$ (iii) $19 - 5x^2$ (iv) $100 - 10x^3$

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8. Find the value of the following expressions for x=2

(i) x+4 (ii) 4x-3 (iii) $19 - 5x^2$ (iv) $100 - 10x^3$

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9. Find the value of the following expressions for $a = 3, b = 2$.

(i) $a + b$ (ii) $7a - 4b$ (iii) $a^2 + 2ab + b^2$ (iv) $a^3 - b^2$

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Exercise 12 3

1. Simplify the expression and find its value when $a = 5$ and $b = -3$ then $2(a^2 + ab) + 3 - ab$

A. 36

B. 38

C. 30

D. 35

Answer: B

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2. What should be the value of a if the value of $2x^2 + x - a$ equals to 5, when $x = 0$?

A. -5

B. 5

C. 0

D. Not define

Answer: A

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3. If $z = 10$ find the value of $z^3 - 3(z - 10)$.

(ii) If $p = -10$, find the value of $p^2 - 2p - 100$

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4. If $m = 2$ find the value of :

(i) $m - 2$

(ii) $3m - 5$

(iii) $9 - 5m$

(iv) $3m^2 - 2m - 7$

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5. Find the value of the following expressions, when $x = -1$

(i) $2x - 7$ (ii) $-x + 2$ (iii) $x^2 + 2x + 1$ (iv) $2x^2 - x - 2$

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6. If $p = -2$, find the value of :

(i) $4p + 7$ (ii) $-3p^2 + 4p + 7$ (iii) $-2p^3 - 3p^2 + 4p + 7$

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7. When $a = 0$ and $b = -1$ find the value of the given expressions :

(i) $2a + 2b$

(ii) $2a^2 + b^2 + 1$

(iii) $2a^2b + 2ab^2 + ab$

(iv) $a^2 + ab + 2$

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8. If $a = 2$ and $b = -2$, find the value of

(i) $a^2 + b^2$ (ii) $a^2 + ab + b^2$ (iii) $a^2 - b^2$

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9. Simplify these expressions and find their values if $x = 3, a - 1$ and $b = -2$

(i) $3x - 5 - x + 9$

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10. Simplify the expressions and find the value if x is equal to 2 (i) $x + 7 + 4(x - 5)$ (ii) $3(x + 2) + 5x - 7$ (iii) $6x + 5(x_2)$ (iv) $4(2x - 1) + 3x + 11$

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Exercise 12 1

1. Identify the numerical coefficients of terms (other than constants) in the following expressions :

(i) $5 - 3t^2$ (ii) $1 + t + t^2 + t^3$ (iii) $x + 2xy + 3y$ (iv) $100m + 100n$

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2. Identify the terms and their factors in the following expressions Show the terms and factors by tree diagrams. (a) $x - 3$ (b) $1 + x + x^2$ (c) $y - y^3$ (d) $5xy^2 + 7x^2y$

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3. Get the algebraic expressions in the following cases using variables, constants and arithmetic operations.

(i) Subtraction of z from y.

(ii) One-half of the sum of numbers x and y.

(iii) The number z multiplied by itself.

(iv) One-fourth of the product of numbers p and q.

(v) Numbers x and y both squared and added.

(vi) Number 5 added to three times the product of numbers m and n.

(vii) Product of numbers y and z subtracted from 10.

(viii) Sum of numbers a and b subtracted from their product.

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4. Identify like terms in the following : (a)

$-xy^2, -4yx^2, 8x^2, 2xy^2, 7y, -11x^2, -100x, -11yx, 20x^2y, -6x^2, y, 2$

(b)

$10pq, 7p, 8q, -p^2q^2, -7qp, -100q, -23, 12q^2p^2, -5p^2, 41, 2405p, 78qp,$

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5. State whether a given pair of terms is of like or unlike terms.

(i) $1, 100$ (ii) $-7x, \frac{5}{2}x$ (iii) $-29x, 29y$ (iv) $14xy, 42yx$

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6. Classify into monomials, binomials and trinomials. (i) $4y - 7z$ (ii) y^2 (iii) $x + y - xy$ (iv) 100

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7. Identify terms which contain x and give the coefficient of x. (i) $y^2x + y$ (ii) $13y^2 - 8yx$ (iii) $x + y + 2$ (iv) $5 + z + zx$

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