

**1. From the algebraic expressions using variables, constants, and arithmetic operations:**

**(i) 6 more than thrice a number  $x$ .**

**Solution:-**

$$3x + 6$$

**(ii) 5 times  $x$  is subtracted from 13.**

**Solution:-**

$$13 - 5x$$

**(iii) The numbers  $x$  and  $y$  both squared and added.**

**Solution:-**

$$x^2 + y^2$$

**(iv) Number 7 is added to 3 times the product of  $p$  and  $q$ .**

**Solution:-**

$$3pq + 7$$

**(v) Three times of  $x$  is subtracted from the product of  $x$  with itself.**

**Solution:-**

$$x^2 - 3x$$

**(vi) Sum of the numbers  $m$  and  $n$  is subtracted from their product.**

**Solution:-**

$$mn - (m + n)$$

**2. A taxi charges ₹ 9 per km and a fixed charge of ₹ 50. If the taxi is hired for  $x$  km, write an algebraic expression for this situation.**

**Solution:-**

From the question it is given that,

A taxi charges ₹ 9 per km

A fixed charge of ₹ 50

If the taxi is hired for  $x$  km = ₹  $(9x + 50)$

**3. Write down the algebraic expression whose terms are:**

**(i)  $5a$ ,  $-3b$ ,  $c$**

**Solution:-**

Expressions is defined as, numbers, symbols and operators (such as +, -, × and ÷) grouped together that show the value of something.

So, Expressions =  $5a - 3b + c$

(ii)  $x^2$ ,  $-5x$ ,  $6$

**Solution:-**

Expressions is defined as, numbers, symbols and operators (such as +, -, × and ÷) grouped together that show the value of something.

So, Expressions =  $x^2 - 5x + 6$

(iii)  $x^2y$ ,  $xy$ ,  $-xy^2$

**Solution:-**

Expressions is defined as, numbers, symbols and operators (such as +, -, × and ÷) grouped together that show the value of something.

So, Expressions =  $x^2y + xy - xy^2$

**4. Write all the terms of each of the following algebraic expressions:**

(i)  $3 - 7x$

**Solution:-**

In algebra a term is either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or - signs or sometimes by division.

Terms =  $3, -7x$

(ii)  $2 - 5a + \frac{1}{2}b$

**Solution:-**

In algebra a term is either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or - signs or sometimes by division.

Terms =  $2, -5a, \frac{1}{2}b$

(iii)  $3x^5 + 4y^3 - 7xy^2 + 3$

**Solution:-**

In algebra a term is either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or - signs or sometimes by division.

Terms =  $3x^5, 4y^3, -7xy^2, 3$

**5. Identify the terms and their factors in the algebraic expressions given below:**

(i)  $-4x + 5y$

(ii)  $xy + 2x^2y^2$

(iii)  $1.2ab - 2.4b + 3.6a$

**Solution:-**

Expressions is defined as, numbers, symbols and operators (such as +, -,  $\times$  and  $\div$ ) grouped together that show the value of something.

In algebra a term is either a single number or variable, or numbers and variables multiplied together. Terms are separated by + or - signs or sometimes by division.

Factors is defined as, numbers we can multiply together to get another number.

Sl.No.	Expression	Terms	Factors
(i)	$-4x + 5y$	$-4x$ $5y$	$-4, x$ $5, y$
(ii)	$xy + 2x^2y^2$	$xy$ $2x^2y^2$	$x, y$ $2, x, x, y, y$
(iii)	$1.2ab - 2.4b + 3.6a$	$1.2ab$ $-2.4b$ $3.6a$	$1.2, a, b$ $-2.4, b$ $3.6, a$

6. Show the terms and their factors by tree diagrams of the following algebraic expressions:

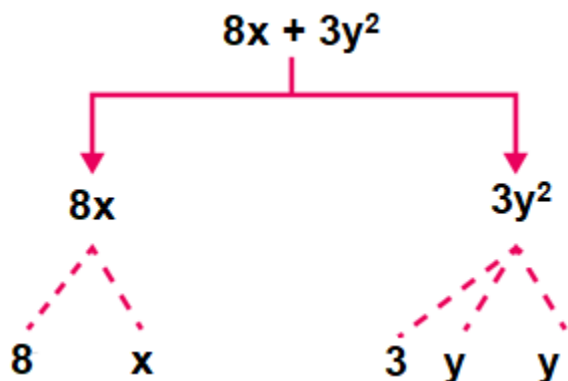
(i)  $8x + 3y^2$

**Solution:-**

Expression:  $8x - 3y^2$

Terms:  $8x, -3y^2$

Factors:  $8, x; 3, y, y$



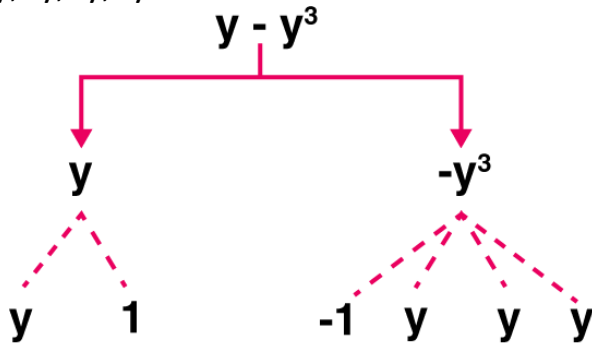
(ii)  $y - y^3$

**Solution:-**

Expression:  $y - y^3$

Terms:  $y, -y^3$

Factors:  $y; -y, -y, -y$



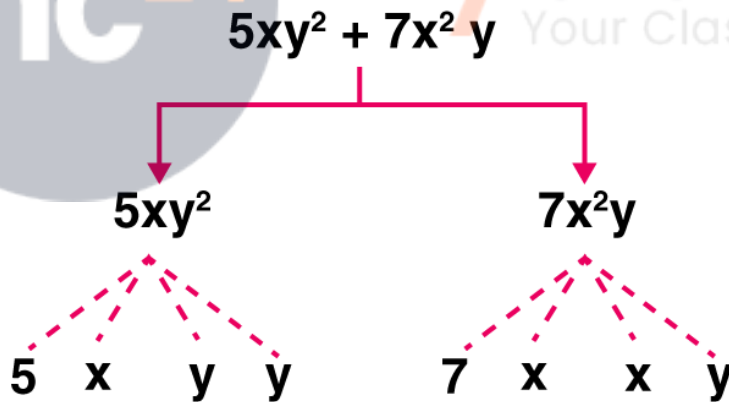
(iii)  $5xy^2 + 7x^2y$

**Solution:-**

Expression:  $5xy^2 + 7x^2y$

Terms:  $5xy^2, 7x^2y$

Factors:  $5, x, y, y; 7, x, x, y$



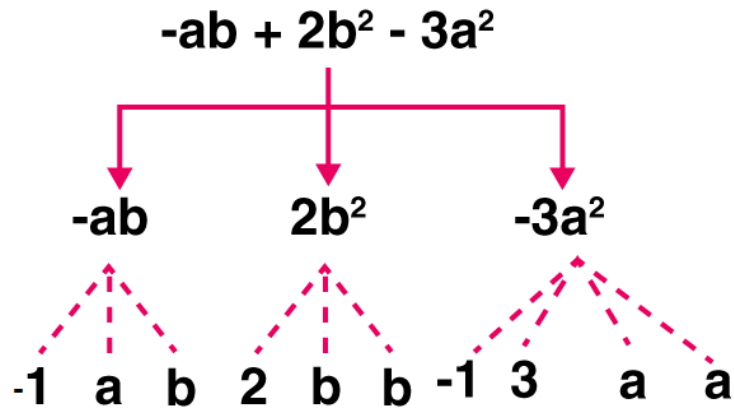
(iv)  $-ab + 2b^2 - 3a^2$

**Solution:-**

Expression:  $-ab + 2b^2 - 3a^2$

Terms:  $-ab, 2b^2, -3a^2$

Factors:  $-a, b; 2, b, b; -3, a, a$



7. Write down the numerical coefficient of each of the following:

(i)  $-7x$

(ii)  $-2x^3y^2$

(iii)  $6abcd^2$

(iv)  $(\frac{2}{3})pq^2$

**Solution:-**

A coefficient is a number used to multiply a variable ( $3x$  means 3 times  $x$ , so 3 is a coefficient) Variables on their own (without a number next to them) actually have a coefficient of 1 ( $x$  is really  $1x$ )

Then,

(i)  $-7x$  numerical co-efficient is  $-7$

(ii)  $-2x^3y^2$  numerical co-efficient is  $-2$

(iii)  $6abcd^2$  numerical co-efficient is  $6$

(iv)  $(\frac{2}{3})pq^2$  numerical co-efficient is  $\frac{2}{3}$