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 + ½b
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, ½b

(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 + 2x²y²

(iii) 1.2ab – 2.4b + 3.6a

Solution:-

Expressions is defined as, numbers, symbols and operators (such as +. - , × and ÷) 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

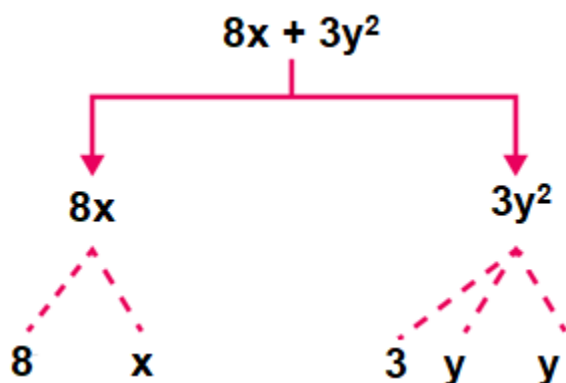**6. Show the terms and their factors by tree diagrams of the following algebraic expressions:**

(i) 8x + 3y²

Solution:-

Expression: $8x - 3y^2$

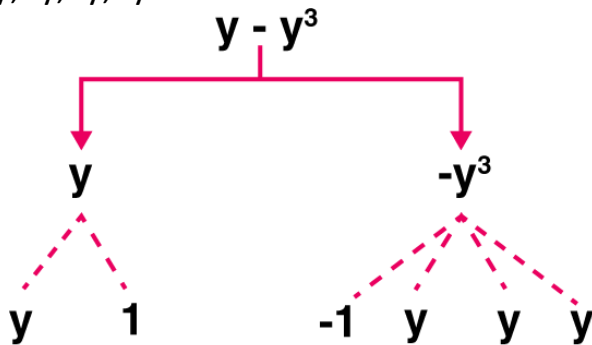Terms: 8x, $-3y^2$

Factors: 8, x; 3, y, y

$8x + 3y^2$

$8x$ — 8, x

$3y^2$ — 3, y, y

(ii) y – y³
Solution:-
Expression: $y - y^3$
Terms: y, $-y^3$
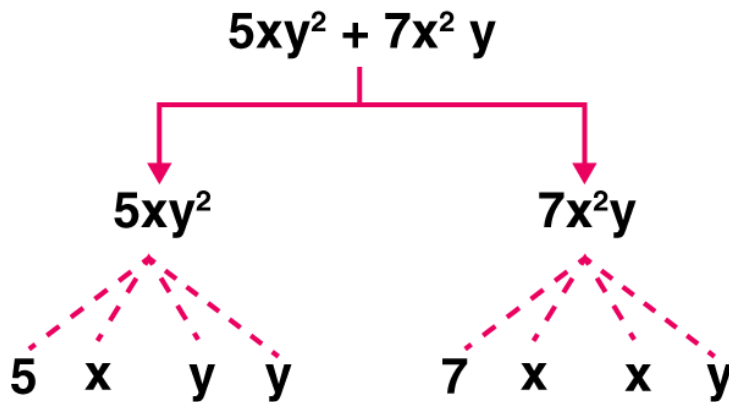Factors: y; -y, -y, -y

(iii) 5xy² + 7x²y
Solution:-
Expression: $5xy^2 + 7x^2y$
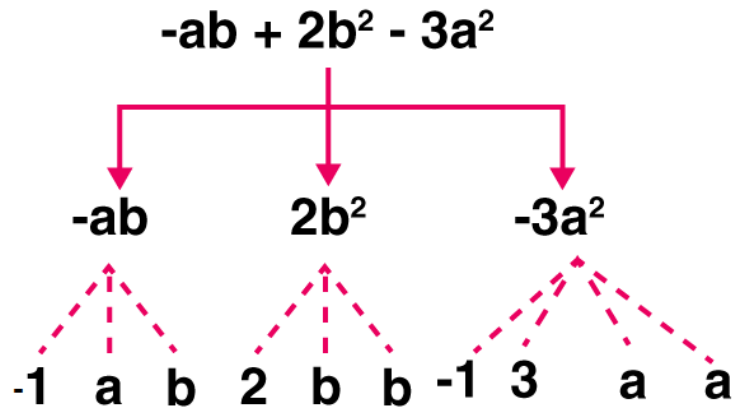Terms: $5xy^2$, $7x^2y$
Factors: 5, x, y, y; 7, x, x, y

(iv) -ab + 2b² – 3a²
Solution:-
Expression: $-ab + 2b^2 - 3a^2$
Terms: $-ab$, $2b^2$, $-3a^2$
Factors: -a, b; 2, b, b; -3, a, a

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

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

(i) -7x

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

(iii) $6abcd^2$

(iv) $(2/3)pq^2$

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) $(2/3)pq^2$ numerical co-efficient is 2/3