

aw
15/7/21

Ch-18 - Fundamental Concepts

Algebra

Algebra is the combination of arithmetic (constants) and variables.

Ex: $-7x, 5x, 8a, x+2y+3z, 3x-2, 7x+8, 7x+24y$, etc

Variables are ~~to~~

Letters used in algebra are called variables.

Signs and Symbols

= means (equal to)

< means (less than)

\nless means (not less than)

\therefore means (therefore)

\sim means (difference between)

\neq means (not equal)

> means (greater than)

\nless means (not greater than)

\because means (because or since)

\Rightarrow means (implies that)

Writing a given statement in algebraic form

(1) x is added to 7 is equal to 23
or

x increased by 7 is equal to 23

Sol: $x + 7 = 23$

(2) p subtracted from 7 is greater than

Sol: $7 - p > x$

Ex-18'A

i) The sum of 8 and x is equal to y.
ans) $8 + x = y$

ii) x decreased by 5 is equal to y.
ans) $x - 5 = y$

ii) The sum of 2 and x is greater than y .
ans) $2 + x > y$

iv) The sum of x and y is less than 24.
ans) $x + y < 24$

v) 15 multiplied by m gives $3n$.
ans) $15m = 3n$

vi) Product of 8 and y is equal to $3x$.
ans) $8y = 3x$

vii) 30 divided by b is equal to p .
ans) $\frac{30}{b} = p$

viii) z decreased by $3x$ is equal to y .
ans) $x - 3x = y$

ix) 12 times of x is equal to $5z$.
ans) $12x = 5z$

x) 12 times of x is greater than $5z$.
ans) $12x > 5z$

xi) 12 times of x is less than $5z$.
ans) $12x < 5z$

xii) $3z$ subtracted from 45 is equal to y .
ans) $45 - 3z = y$

xiii) $8x$ divided by y is equal to $2z$.
ans) $\frac{8x}{y} = 2z$

xiv) $7y$ subtracted from $5x$ gives $8z$.
ans) $5x - 7y = 8z$

xv) $7y$ decreased by $5x$ gives $8z$.
ans) $7y - 5x = 8z$

2) i) $3x + 8 = 15$ ans) 8 more than 3 times x gives 15.

ii) $7 - y > x$ ans) y subtracted from 7 is greater than x .

iii) $2y - x < 12$ ans) 2 times y decreased by x is less than 12.

iv) $5 \div z = 5$ ans) 5 divided by z gives 5.

v) $a + 2b > 18$ ans) 2 times b added to a is greater than 18.

vi) $2x - 3y = 16$ ans) 3 times y subtracted from 2 times x gives 16.

vii) $3a - 4b > 14$ ans) 3 times a decreased by 4 times b is greater than 14.

viii) $b + 7a < 21$ ans) 7 times a ~~more~~ more than b is less than 21.

ix) $(16 + 2a) - x > 25$ ans) 16 more than 2 times a decreased by x is greater than 25.

x) $(3x + 12) - y < 3a$
ans) 3 times x added to 12 decreased by y is less than 3 times a .