CHAPTER 7

Algebra

Simplifying Algebraic Expressions

Be able to collect "like" terms & multiply terms in algebraic expressions

Examples :-

Collect Like Terms

$a + a + a + a = 4a$

$12m - 7m = 5m$

$5x + y - x + 7y = 4x + 8y$ (not = $12xy$)

$14 + 3k - 3 = 11 + 3k$ (not = $14k$)

$h^2 + h^2 + h^2 = 3h^2$ (not h^6)

Multiply Terms

$9 \times p = 9p$

$h \times 8 = 8h$

$w \times w = w^2$ (not = $2w$)

$5m \times 6m = 30m^2$ (not $30m$)

Divide Terms

$14a \div 2a$

$= 14\cancel{a} \div 2\cancel{a}$

$= 7$

$18p^2 \div 9p$

$= 18 \times p \times \cancel{p} \div 9\cancel{p}$

$= 2p$

Exercise 1

1. Simplify the following expressions by collecting like terms :-

a	$p + p$	b	$k + k + k$	c	$w + w + w + w + w$
d	$x - x + x$	e	$y + y - y + y$	f	$h + h + h - h - h$
g	$p + 3p - 2p + p$	h	$8k + 4k - 10k + k$	i	$6w - 5w - 2w + w$
j	$x + y + 2x$	k	$a + a + b - b$	l	$2g + h - g + h$
m	$9m - n - 8m + n$	n	$3x + 7x - 1$	o	$8 + 2a - 3$
p	$9 - 2p + 3p - 9$	q	$6 + 5u - 4u$	r	$3p + 8q + 6p - 7q$
s	$5g + h - 6g + 3h$	t	$a + 3b - a - 3b$	u	$1 + 2x - x + 3$
v	$20 - k + 11k - 19$	w	$10 - 6w - 1 + 6w + w$	x	$a + b - a + b + 2a - b$
y	$x^2 + x^2 + x^2$	z	$p^2 + q^2 - p^2 + q^2$.		

2. Simplify by multiplying (or dividing) :-

a	$8 \times p$	b	$w \times 4$	c	$m \times m$	d	$d \times d \times d$
e	$12 \times e$	f	$h \times 0{\cdot}5$	g	$n \times 1{\cdot}2$	h	$y \times y \times 5$
i	$6 \times u \times 8$	j	$8p \times 7$	k	$12 \times c \times c$	l	$p \times q \times 3$
m	$w^2 \times w$	n	$u \times u^2$	o	$a \times 9b$	p	$3p \times 5q$
q	$3y \times y \times y$	r	$5g \times 2g \times g$	s	$4h^2 \times 5h$	t	$(2q)^2$ i.e. $(2q \times 2q)$
u	$8p \div 2p$	v	$20m \div 2m$	w	$18ab \div 9a$	x	$10x^2 \div 5x$
y	$18x^2 \div 6x$	z	$30x^2 \div 10x$.				