NCERT solutions for class 8 maths algebraic expressions and identities Ex-9.2

Q1. Find the product of the following pairs of monomials:

(i) $4, 7p$

(ii) $-4p, 7p$

(iii) $-4p, 7pq$

(iv) $4p^3, -3p$

(iv) $4p, 0$

Ans:

(i) $4 \times 7p = 4 \times 7 \times p = 28p$

(ii) $-4p \times 7p = (-4 \times 7) \times (p \times p)$

$= -28p^2$

(iii) $-4p \times 7pq = (-4 \times 7)(p \times pq)$

$= -28p^2q$

(iv) $4p^3 \times -3p = (4 \times -3)(p^3 \times p)$

$= -12p^4$

(v) $4p \times 0 = (4 \times 0)(p) = 0$

Q2. Find the areas of rectangles with the following pairs of monomials as their lengths and breadths respectively:

(p,q); $(10m,5n)$; $(20x^2,5y^2)$; $(4x,3x^2)$; $(3mn,4np)$

Ans:

(i) Area of rectangle

$= length \times breadth$

$= p \times q = pq$ sq. units

(ii) Area of rectangle

$= length \times breadth$

$= 10m \times 5n = (10 \times 5)(m \times n)$

$= 50mn$ sq. units

(iii) Area of rectangle $= length \times breadth$

$= 20x^2 \times 5y^2 = (20 \times 5)(x^2 \times y^2)$

$= 100x^2y^2$ sq. units

(iv) Area of rectangle $= length \times breadth$

$= 4x \times 3x^2 = (4 \times 3)(x \times x^2)$

$= 12x^3$ sq. units

(v) Area of rectangle $= length \times breadth$

$= 3mn \times 4np = (3 \times 4)(mn \times np)$

$= 12mn^2p$ sq. units

Q3. Complete the table of products:

(i)

First monomial $\longrightarrow$ **Second monomial** $\downarrow$	$2x$	$-5y$	$3x^2$	$-4xy$	$7x^2y$	$-9x^2y^2$
$2x$	$4x^2$	.....	.....	.....	.....	.....
$-5y$	.....	.....	$-15x^2y$	.....	.....	.....
$3x^2$	.....	.....	.....	.....	.....	.....
$-4xy$	.....	.....	.....	.....	.....	.....
$7x^2y$	.....	.....	.....	.....	.....	.....
$-9x^2y^2$	.....	.....	.....	.....	.....	.....

Ans:

(i)

First monomial $\longrightarrow$ **Second monomial** $\downarrow$	$2x$	$-5y$	$3x^2$	$-4xy$	$7x^2y$	$-9x^2y^2$
$2x$	$4x^2$	$-10xy$	$6x^3$	$-8x^2y$	$14x^3y$	$-18x^3y^2$
$-5y$	$-10xy$	$25y^2$	$-15x^2y$	$20xy^2$	$-35x^2y^2$	$45x^2y^3$
$3x^2$	$6x^3$	$-15x^2y$	$9x^4$	$-12x^3y$	$21x^4y$	$-27x^4y^2$
$-4xy$	$8x^2y$	$20xy^2$	$-12x^3y$	$16x^2y^2$	$-28x^3y^2$	$36x^3y^3$
$7x^2y$	$14x^3y$	$-35x^2y^2$	$21x^4y$	$-28x^3y^2$	$49x^4y^2$	$-63x^4y^3$
$-9x^2y^2$	$-18x^3y^2$	$45x^2y^3$	$-27x^4y^2$	$36x^3y^3$	$-63x^4y^3$	$81x^4y^4$

Q4. Obtain the volume of rectangular boxes with the following length, breadth and height respectively:

(i) $5a, 3a^2 7a^4$

(ii) $2p, 4q, 8r$

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

(iv) $a, 2b, 3c$

Ans: (i) Volume of rectangular box

$= length \times breadth \times height$

$= 5a \times 3a^2 \times 7a^4 = (5 \times 3 \times 7)(a \times a^2 \times a^4)$

$= 105a^7$ cubic units

(ii) Volume of rectangular box

$= length \times breadth \times height$

$= 2p \times 4q \times 8r = (2 \times 4 \times 8)(p \times q \times r)$

$= 64pqr$ cubic units

(iii) Volume of rectangular box

$= length \times breadth \times height$

$= xy \times 2x^2y \times 2xy^2$

$= (1 \times 2 \times 2)(x \times x^2 \times x \times y \times y \times y^2)$

$= 4x^4y^4$ cubic units

(iv) Volume of rectangular box

$= length \times breadth \times height$

$= a \times 2b \times 3c = (1 \times 2 \times 3)(a \times b \times c)$

$= 6abc$ cubic units

Q5. Obtain the product of:

(i) xy, yz, zx

(ii) $a, -a^2, a^3$

(iii) $2, 4y, 8y^2, 16y^3$

(iv) $a, 2b, 3c, 6abc$

(v) $m, -mn, mnp$

Ans:

(i) $xy \times yz \times zx = x \times x \times y \times y \times z \times z$

$= x^2 y^2 z^2$

(ii) $a \times (-a^2) \times a^3 = (-1)(a \times a^2 \times a^3)$

$= -a^6$

(iii) $2 \times 4y \times 8y^2 \times 16y^3$

$= (2 \times 4 \times 8 \times 16)(y \times y^2 \times y^3)$

$= 1024y^6$

(iv) $a \times 2b \times 3c \times 6abc$

$= (1 \times 2 \times 3 \times 6)(a \times b \times c \times abc)$

$= 36a^2 b^2 c^2$

(v) $m \times -mn \times mnp = (1)(m \times m \times m \times n \times n \times p)$

$= -m^3 n^2 p$

********** END **********