

Exercise 9.2

Question 1:

Find the product of the following pairs of monomials:

(i) $4, 7p$

(ii) $-4p, 7p$

(iii) $-4p, 7pq$

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

(iv) $4p, 0$

Answer 1:

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

Question 2:

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

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

Answer 2:

(i) Area of rectangle = length x breadth
= $p \times q = pq$ sq. units

(ii) Area of rectangle = length x breadth
= $10m \times 5n = (10 \times 5)(m \times n) = 50mn$ sq. units

(iii) Area of rectangle = length x breadth
= $20x^2 \times 5y^2 = (20 \times 5)(x^2 \times y^2) = 100x^2y^2$ sq. units

(iv) Area of rectangle = length x breadth
= $4x \times 3x^2 = (4 \times 3)(x \times x^2) = 12x^3$ sq. units

(v) Area of rectangle = length x breadth
= $3mn \times 4np = (3 \times 4)(mn \times np) = 12mn^2p$ sq. units

Question 3:

Complete the table of products:

First monomial → Second monomial ↓	$2x$	$-5y$	$3x^2$	$-4xy$	$7x^2y$	$-9x^2y^2$
$2x$	$4x^2$
$-5y$	$-15x^2y$
$3x^2$
$-4xy$
$7x^2y$
$-9x^2y^2$

Answer 3:

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

Question 4:

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) $a, 2b, 3c$

Answer 4:

- (i) Volume of rectangular box = length x breadth x 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 x breadth x 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 x breadth x 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 x breadth x height
 $= a \times 2b \times 3c = (1 \times 2 \times 3)(a \times b \times c) = 6abc$ cubic units

Question 5:

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) $m, -mn, mnp$

Answer 5:

- (i) $xy \times yz \times zx = x \times x \times y \times y \times z \times z = x^2y^2z^2$
- (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) $a \times 2b \times 3c \times 6abc = (1 \times 2 \times 3 \times 6)(a \times b \times c \times abc) = 36a^2b^2c^2$
- (v) $m \times -mn \times mnp = (1)(m \times m \times m \times n \times n \times p) = -m^3n^2p$