Exercise 9.2   Page No: 143

1. Find the product of the following pairs of monomials.
  (i) 4, 7p
  (ii) - 4p, 7p
  (iii) – 4p, 7pq
  (iv) 4p³, - 3p
  (v) 4p, 0

Solution:

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

   (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) $4p \times 0 = 0$

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

   (p, q) ; (10m, 5n) ; (20x² , 5y²) ; (4x, 3x²) ; (3mn, 4np)

Solution:

Area of rectangle = Length x breadth. So, it is multiplication of two monomials.
The results can be written in square units.

   (i) $p \times q = pq$

   (ii) $10m \times 5n = 50mn$

   (iii) $20x^2 \times 5y^2 = 100x^2y^2$

   (iv) $4x \times 3x^2 = 12x^3$

   (v) $3mn \times 4np = 12mn^2p$

3. **Complete the following table of products:**

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

Solution:

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

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) $a, 2b, 3c$

Solution:

Volume of rectangle = length x breadth x height. To evaluate volume of rectangular boxes, multiply all the monomials.

(i) *5a* x *3a² x 7a⁴ = (5 × 3 × 7) (a × a^2 × a^4) = 105a⁷*

(ii) *2p* x *4q* x *8r* = (2 × 4 × 8) (p × q × r) = *64pqr*

(iii) *y × 2x²y × 2xy² =(1 × 2 × 2)(x × x^2 × x × y × y × y^2) = 4x⁴y⁴*

(iv) a x 2b x 3c = (1 × 2 × 3) (a × b × c) = 6abc

5. Obtain the product of

 (i) xy, yz, zx
 (ii) a, - a² , a³
(iii) 2, 4y, 8y² , 16y³
(iv) a, 2b, 3c, 6abc
(v) m, - mn, mnp

Solution:

 (i) $xy \times yz \times zx = x^2 y^2 z^2$

(ii) $a \times -a^2 \times a^3 = -a^6$

(iii) $2 \times 4y \times 8y^2 \times 16y^3 = 1024\, y^6$

(iv) $a \times 2b \times 3c \times 6abc = 36a^2 b^2 c^2$

(v) $m \times -mn \times mnp = -m^3 n^2 p$