

CLASS VIII: Maths
Chapter 8: Algebraic Expressions and Identities

Questions and Solutions | Exercise 8.2 - NCERT Books

Q 1. Find the product of the following pairs of monomials.

(i) $4, 7p$ (ii) $-4p, 7p$ (iii) $-4p, 7pq$

(iv) $4p^3, -3p$ (v) $4p, 0$

Answer :

The product will be as follows.

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

(ii) $-4p \times 7p = -4 \times p \times 7 \times p = (-4 \times 7) \times (p \times p) = -28p^2$

(iii) $-4p \times 7pq = -4 \times p \times 7 \times p \times q = (-4 \times 7) \times (p \times p \times q) = -28p^2q$

(iv) $4p^3 \times -3p = 4 \times (-3) \times p \times p \times p \times p = -12p^4$

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

Q 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 :

We know that,

Area of rectangle = Length x Breadth

Area of 1st rectangle = $p \times q = pq$

Area of 2nd rectangle = $10m \times 5n = 10 \times 5 \times m \times n = 50 mn$

Area of 3rd rectangle = $20x^2 \times 5y^2 = 20 \times 5 \times x^2 \times y^2 = 100 x^2y^2$

Area of 4th rectangle = $4x \times 3x^2 = 4 \times 3 \times x \times x^2 = 12x^3$

Area of 5th rectangle = $3mn \times 4np = 3 \times 4 \times m \times n \times n \times p = 12mn^2p$

Q3 :

Complete the table of products.

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

Answer :

The table can be completed as follows.

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

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) $a, 2b, 3c$

Answer :

We know that,

Volume = Length x Breadth x Height

$$(i) \text{ Volume} = 5a \times 3a^2 \times 7a^4 = 5 \times 3 \times 7 \times a \times a^2 \times a^4 = 105 a^7$$

$$(ii) \text{ Volume} = 2p \times 4q \times 8r = 2 \times 4 \times 8 \times p \times q \times r = 64pqr$$

$$(iii) \text{ Volume} = xy \times 2x^2y \times 2xy^2 = 2 \times 2 \times xy \times x^2y \times xy^2 = 4x^4y^4$$

$$(iv) \text{ Volume} = a \times 2b \times 3c = 2 \times 3 \times a \times b \times c = 6abc$$

Q 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 :

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

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

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

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

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