



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

$$= \text{length} \times \text{breadth}$$

$$= p \times q = pq \text{ sq. units}$$

**(ii)** Area of rectangle

$$= \text{length} \times \text{breadth}$$

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

$$= 50mn \text{ sq. units}$$

**(iii)** Area of rectangle =  $\text{length} \times \text{breadth}$

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

$$= 100x^2y^2 \text{ sq. units}$$

**(iv)** Area of rectangle =  $\text{length} \times \text{breadth}$

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

$$= 12x^3 \text{ sq. units}$$

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

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

$$= 12mn^2p \text{ sq. units}$$

**Q3.** Complete the table of products:

(i)

| First monomial<br>→  |        |       |           |        |         |            |
|----------------------|--------|-------|-----------|--------|---------|------------|
| Second monomial<br>↓ | $2x$   | $-5y$ | $3x^2$    | $-4xy$ | $7x^2y$ | $-9x^2y^2$ |
| $2x$                 | $4x^2$ | ..... | .....     | .....  | .....   | .....      |
| $-5y$                | .....  | ..... | $-15x^2y$ | .....  | .....   | .....      |
| $3x^2$               | .....  | ..... | .....     | .....  | .....   | .....      |
| $-4xy$               | .....  | ..... | .....     | .....  | .....   | .....      |
| $7x^2y$              | .....  | ..... | .....     | .....  | .....   | .....      |
| $-9x^2y^2$           | .....  | ..... | .....     | .....  | .....   | .....      |

**Ans:**

(i)

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

**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

$$= \text{length} \times \text{breadth} \times \text{height}$$

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

$$= 105a^7 \text{ cubic units}$$

**(ii)** Volume of rectangular box

$$= \text{length} \times \text{breadth} \times \text{height}$$

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

$$= 64pqr \text{ cubic units}$$

**(iii)** Volume of rectangular box

$$= \text{length} \times \text{breadth} \times \text{height}$$

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

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

$$= 4x^4y^4 \text{ cubic units}$$

**(iv)** Volume of rectangular box

$$= \text{length} \times \text{breadth} \times \text{height}$$

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

$$= 6abc \text{ cubic units}$$

**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)**  $m \times -mn \times mnp = (1)(m \times m \times m \times n \times n \times p)$   
 $= -m^3 n^2 p$

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