TEXT BOOK EXERCISE 8.2

Q. 1. (*i*) The product of two monomials is ..... .

(*ii*) The product of three monomials is ..... .

Ans. (*i*) Monomial (*ii*) Monomial.

Q. 2. Find the product of following pairs of monomials

(*i*) 8x, 3y **(*ii*) 4, 2x**
(*iii*) – 4p, 3q **(*iv*) 8p, – 3pq**
(*v*) 3xy, 0 **(*vi*) p^2, 2pq**
(*vii*) 2p, 3pr **(*viii*) r, 2p**

Solution.

(*i*) $8x \times 3y = (8 \times 3)(x \times y) = 24xy$ **Ans.**

(*ii*) $4 \times 2x = 4 \times 2 \times x = 8x$ **Ans.**

(*iii*) $(-4p) \times (3q) = (-4 \times 3) \times (p \times q)$
$= -12pq$ **Ans.**

(*iv*) $8p \times (-3pq) = 8 \times (-3) \times (p \times p) \times q$
$= -24p^2q$ **Ans.**

(*v*) $3xy \times 0 = (3 \times 0)\, xy = 0xy = 0$ **Ans**

(*vi*) $p^2 \times 2pq = (1 \times 2) \times (p^2 \times p) \times q$
$= 2p^3q$ **Ans.**

(*vii*) $2p \times 3pr = (2 \times 3) \times (p \times p) \times r$
$= 6p^2r$ **Ans.**

(*viii*) $r \times 2p = 2rp$ **Ans.**

Q. 3. Find the area of rectangles with following pairs as their length and breadth respectively.

(x, y), (2*l*, 4m), (10m, 6n), (3mn, 4n), ($9a^2b$, 13abc), (2ax, 3pr), (3mn, 4np), (2p, pqr), ($3x^3y$, $7xy^2$)

Solution. Area of rectangle = length × breadth
$= x \times y = xy$,

Area of rectangle = $(2l) \times (4m) = (2 \times 4) \times (l \times m) = 8lm$,

Area of rectangle = $(10m) \times (6n) = (10 \times 6) \times (m \times n) = 60\, mn$,

Area of rectangle = $(3mn) \times (4n) = (3 \times 4) \times m \times (n \times n) = 12\, mn^2$,

Area of rectangle = $(9a^2b \times 13abc) = (9 \times 13) \times (a^2 \times a) \times (b \times b) \times c = 117a^3b^2c$,

Area of rectangle = $(2ax) \times (3pr) = (2 \times 3)\, a \times x \times p \times r = 6axpr$,

Area of rectangle = $(3mn) \times (4np) = (3 \times 4) \times m \times n \times n \times p = 12mn^2p$,

Area of rectangle = $(2p) \times (pqr) = 2 \times (p \times p) \times q \times r = 2p^2qr$,

Area of rectangle = $(3x^3y) \times (7xy^2) = 3 \times 7 \times (x^3 \times x) \times (y \times y^2) = 21x^4y^3$.

Q. 4. Complete the table of Products

First Monomial → / Second Monomial ↓	2x	– 5y	$2x^2$	– 3xy	$7x^2y$	$-9x^2y^2$
– 2y						
3x						
y^2						
– 4xy						
$2x^2y^2$						

Ans.

First monomial / Second monomial	$2x$	$-5y$	$2x^2$	$-3xy$	$7x^2y$	$-9x^2y^2$
$-2y$	$-4xy$	$10y^2$	$-4x^2y$	$6xy^2$	$-14x^2y^2$	$18x^2y^3$
$3x$	$6x^2$	$-15xy$	$6x^3$	$-9x^2y$	$21x^3y$	$-27x^3y^2$
y^2	$2xy^2$	$-5y^3$	$2x^2y^2$	$-3xy^3$	$7x^2y^3$	$-9x^2y^4$
$-4xy$	$-8x^2y$	$20xy^2$	$-8x^3y$	$12x^2y^2$	$-28x^3y^2$	$36x^3y^3$
$2x^2y^2$	$4x^3y^2$	$-10x^2y^3$	$4x^4y^2$	$-6x^3y^3$	$14x^4y^3$	$-18x^4y^4$

Q. 5. Find the Product of

(i) $3x, 4x^2, -7x^3$ **(ii) 2zx, 3y, 4z**

(iii) $\frac{a}{2}, \frac{b}{3}, \frac{c}{4}$ **(iv) ab, abc, abcd**

(v) $\frac{x^2y}{3}, 9y^2z, -8z^2x$ (vi) $-3pq, 4p^2x^2$

Solution. (i) $(3x)\times(4x^2)\times(-7x^3)$

$= (3\times4\times-7)\times(x\times x^2\times x^3)$

$= -84x^6$ **Ans.**

(ii) $(2zx)\times(3y)\times(4z)$

$= (2\times3\times4)\times(z\times x\times y\times z)$

$= 24xyz^2$ **Ans.**

(iii) $\left(\frac{a}{2}\right)\times\left(\frac{b}{3}\right)\times\left(\frac{c}{4}\right) = \frac{abc}{24}$ **Ans.**

(iv) $(ab)\times(abc)\times(abcd)$

$= (a\times a\times a)\times(b\times b\times b)\times(c\times c)\times d = a^3b^3c^2d$ **Ans.**

(v) $\left(\frac{x^2y}{3}\right)\times(9y^2z)\times(-8z^2x)$

$= \left(\frac{1}{3}\times9\times-8\right)\times(x^2\times x)\times(y\times y^2)\times(z\times z^2)$

$= -24x^3y^3z^3$ **Ans.**

(vi) $(-3pq)\times(4p^2x^2)$

$= (-3\times4)\times(p\times p^2)\times q\times x^2$

$= -12p^3qx^2$ **Ans.**

Q. 6. Find the volume of rectangular box having length, breadth and height respectively as

(i) x, y, z **(ii) 2x, 3y, 3z**

(iii) 2a, 7b, c **(iv) 4l, 5m, 6n**

(v) ab^2, bc^2, ca^2 **(vi) $\frac{a}{2}, \frac{b}{3}, \frac{c}{4}$**

Solution. (i) Volume of rectangular box

$= l\times b\times h = x\times y\times z = xyz$ **Ans.**

(ii) Volume of rectangular box

$= (2x)\times(3y)\times(3z)$

$= (2\times3\times3)\,x\times y\times z = 18xyz$ **Ans.**

(iii) Volume of rectangular box

$= (2a)\times(7b)\times(c)$

$= (2\times7)\times a\times b\times c$

$= 14abc$ **Ans.**

(iv) Volume of rectangular box

$= (4l)\times(5m)\times(6n)$

$= (4\times5\times6)\times(l\times m\times n)$

$= 120\,lmn$ **Ans.**

(v) Volume of rectangular box

$= (ab^2)\times(bc^2)\times(ca^2)$

$= (a\times a^2)\times(b^2\times b)\times(c^2\times c)$

$= a^3b^3c^3$ **Ans.**

(vi) Volume of rectangular box

$= \frac{a}{2}\times\frac{b}{3}\times\frac{c}{4} = \frac{a\times b\times c}{2\times3\times4}$

$= \frac{abc}{24}$ **Ans.**

Q. 7. Multiple Choice Questions :

(*i*) Multiplying a monomial by a monomial will give you a :

(*a*) Monomial (*b*) Binomial

(*c*) Trinomial (*d*) None of these.

(*ii*) Multiplying a monomial with a binomial will give you a :

(*a*) Monomial (*b*) Binomial

(*c*) Trinomial (*d*) None of these.

(*iii*) Find the product of $3x$ and $5y$.

(*a*) $3xy$ (*b*) $15x$

(*c*) $15xy$ (*d*) $15y$.

(*iv*) Find the product of $3a$ and $7ab$.

(*a*) $21a^2 + b$ (*b*) $15a + 21ab$

(*c*) $21a^2b$ (*d*) $21ab$.

(*v*) If sides of a rectangle are $2ab$ and $3bc$ respectively. Then its area is :

(*a*) $6abc$

(*b*) $6ab^2c$

(*c*) $2ab + 3bc$

(*d*) $6 + ab + bc$.

(*vi*) Find volume of a cuboid with sides a^2b, b^2c and c^2a.

(*a*) abc

(*b*) $a^2b^2c^2$

(*c*) $a^3b^3c^3$

(*d*) $a^2b + b^2c + c^2a$.

Ans. (*i*) (*a*) Monomial (*ii*) (*b*) Binomial

(*iii*) (*c*) $15xy$ (*iv*) (*c*) $21a^2b$

(*v*) (*b*) $6ab^2c$ (*vi*) (*c*) $a^3b^3c^3$.