مثق 2.4

$$8x^3 - y^3 = (2x)^3 - y^3$$

$$3x^3 - y^3 = (2x)^3 + ($$

 $1 - 343x^3 = (1)^3 - (7x)^3$ = $(1 - 7x)(1 + 7x + 49x^2)$ $\therefore a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

 $1 - 343x^3$

 $= (3x + 1)(9x^2 - 3x + 1)$

$$a^{3}b^{3} + 512$$

$$(a^{3}b^{3} + 512 = (ab)^{3} + (8)^{3}$$

$$(a^{3}b^{3} + b^{3} = (a + b)(a^{2} - ab + b^{2})$$

$$a^{3}b^{3} + 512 = (ab)^{3} + (8)^{3}$$

$$\therefore a^{3} + b^{3} = (a + b) (a^{2} - ab + b^{2})$$

$$= (ab + 8) [(ab)^{2} - (ab)(8) + (8)^{2}]$$

$$= (ab + 8) (a^{2}b^{2} - 8ab + 64)$$

$$27 - 1000y^{3} - 5$$

$$= (ab + 8) (a^{2}b^{2} - 8ab + 64)$$

$$27 - 1000y^{3} = (3)^{3} - (10y)^{3}$$

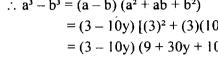
$$\therefore a^{3} - b^{3} = (a - b) (a^{2} + ab + b^{2})$$

$$27 - 1000y^{3} = (3)^{3} - (10y)^{3}$$

$$\therefore a^{3} - b^{3} = (a - b)(a^{2} + ab + b^{2})$$

$$= (3 - 10y)[(3)^{2} + (3)(10y) + (10y)^{2}]$$

$$= (3 - 10y)(9 + 30y + 100y^{2})$$



$$= (3 - 10y) (9 + 30y + 10$$
$$27x^3 - 64y^3 = (3x)^3 - (4y)^3$$

$$27x^{3} - 64y^{3} = (3x)^{3} - (4y)^{3}$$

$$\therefore a^{3} - b^{3} = (a - b) (a^{2} + ab + b^{2})$$

$$\begin{array}{l} 2/x^2 - 04y^3 - (4y)^4 \\ \therefore \ a^3 - b^3 = (a - b) (a^2 + ab + b^2) \\ = (3x - 4y) [(3x)^2 + (3x)(4y) + (4y)^2] \\ = (3x - 4y) (9x^2 + 12xy + 16y^2) \end{array}$$

$$= (3x - 4y) [(3x)^2 + (3x)(4y) + (4y)$$

$$= (3x - 4y) (9x^2 + 12xy + 16y^2)$$

$$x^3y^3 + z^3 = (xy)^3 + z^3$$

$$\begin{array}{ll}
-(xy)^2 + z^2 & -(xy)^2 + z^2 \\
\therefore a^3 + b^3 & = (a+b)(a^2 - ab + b^2) \\
& = (xy+z)(x^2y^2 - xyz + z^2)
\end{array}$$

$$216p^3 - 343 = (6p)^3 - (7)^3$$

$$216p^{3} - 343 = (6p)^{3} - (7)^{3}$$

$$\therefore a^{3} - b^{3} = (a - b)(a^{2} + ab + b^{2})$$

$$= (6p - 7)[(6p)^{2} + (6p)(7) + (7)^{2}]$$

$$= (6p - 7)(36p^{2} + 42p + 49)$$

 $\therefore a^3 - b^3 = (a - b) (a^2 + ab + b^2)$

 $=\left(2x-\frac{1}{3}\right)\left(4x^2+\frac{2}{3}x+\frac{1}{9}\right)$

 $8x^3 - \frac{1}{27} = (2x)^3 - \left(\frac{1}{3}\right)^3$

$$x^3y^3 + z^3 = (xy)^3 + z^3$$

$$10y) + (10y)^{2}$$

$$100y^{2}$$
2

بيل

$$27x^3 - 64y^3$$

 $8x^3 - \frac{1}{27}$ _9

$$x^3y^3 + z^3 - 7$$

$$a^3 + b^3 + a + b$$
 -10
$$a^3 + b^3 + a + b = (a^3 + b^3) + (a + b)$$

$$= (a + b) (a^2 - ab + b^2) + (a + b)$$

$$= (a + b) (a^2 - ab + b^2 + 1)$$

$$a - b - a^3 + b^3 = (a - b) - (a^3 - b^3)$$

$$= (a - b) - (a - b) (a^2 + ab + b^2)$$

$$= (a - b) - (a - b) (a^2 + ab + b^2)$$

$$(a - b)$$

$$b^{3} = (a - b) - (a^{3} - b^{3})$$

$$= (a - b) - (a - b) (a^{2} + ab + b^{2})$$

$$= (a - b) [1 - (a^{2} + ab + b^{2})]$$

$$= x (1 - 8y^{3})$$

$$= (a - b) [1 - (a^{2} + ab + b^{2})]$$

$$xy^{3} = x (1 - 8y^{3})$$

$$= x [1^{3} - (2y)^{3}]$$

$$= x [(1 - 2y) (1 + 2y + 4y^{2})]$$

$$= x (1 - 2y) (1 + 2y + 4y^{2})$$

$$x - 8xy^{3} = x (1 - 8y^{3})$$

$$= x[1^{3} - (2y)^{3}]$$

$$= x [(1 - 2y) (1 + 2y + 4y^{2})]$$

$$= x (1 - 2y) (1 + 2y + 4y^{2})$$

$$x^{12} - y^{12} = (x^{6})^{2} - (y^{6})^{2}$$

$$x^{12} - y^{12} = (x^{6})^{2} - (y^{6})^{2}$$

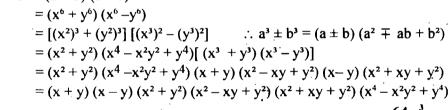
$$\therefore a^{2} - b^{2} = (a + b) (a - b)$$

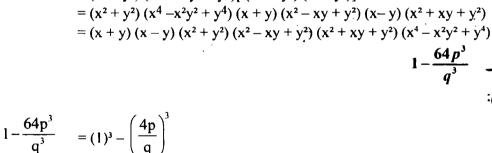
$$= (x^{6} + y^{6}) (x^{6} - b)$$

$$= [(x^{2})^{3} + (y^{2})^{3}]$$

$$= (x^{2} + y^{2}) (x^{4} - b)$$

$$= (x^{2} + y^{2}) (x^{4} - b)$$





 $= (1)^3 + (4u)^3$

 $=\left(1-\frac{4p}{q}\right)\left(1+\frac{4p}{q}+\frac{16p^2}{q^2}\right)$

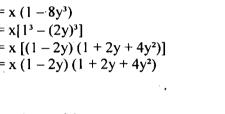
 $= (1 + 4u) (1 - 4u + 16u^2)$

 $= (2x)^3 + (3y)^3 - 3(2x + 3y)$

 $= (2x + 3y) (4x^2 - 6xy + 9y^2) - 3 (2x + 3y)$

 $8x^3 - 6x - 9y + 27y^3 = 8x^3 + 27y^3 - 6x - 9y$

1 + 64u³



$$a^3 + b^3 = (a + b)$$

$$= (a \pm b) ($$
 a^3

=
$$(a \pm b)$$

)]
 $(x^2)(x-y)$
 $(xy \pm y^2)$

$$(x-y)(x^2+y^2)(x^4-y^2)$$

$$(y + y^2)$$

$$(y^2 + y^4)$$

$$(y^2 + y^4)$$

 $x^{12} - y^{12} - 13$

$$x^{2} + xy + y^{2}$$

$$x^{4} - x^{2}y^{2} + y^{4}$$

$$1 - \frac{64p^{3}}{q^{3}} - 14$$

 $1 + 64u^3$

 $8x^3 - 6x - 9y + 27y^3$

$$(2x + 3y)$$
 مشترک کینے ہے
= $(2x + 3y) (4x^2 - 6xy + 9y^2 - 3)$
 $z^3 + 125$

$$(2x + 3y) (4x^2 - 6xy + 9y^2 - 3)$$

 $z^3 + 125$

$$z^3 + 125 - 17$$

: $z^3 + 25$

 $64x^7 - xa^6 - 20$

 $x^3 - 27a^3$:21

 $x^3 + 27a^3 - 22$

$$z^3 + 125 - 1$$

$$z^2 - 5z + 25)$$

$$x^9 + y^9 - 1$$

$$x^{9} + y^{9}$$

 $\therefore a^2 - b^2 = (a+b)(a-b)$

 $= x[(2x)^3 - a^3][(2x)^3 + a^3] \qquad \therefore a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$

 $= x (2x - a) (4x^2 + 2ax + a^2) (2x + a) (4x^2 - 2ax + a^2)$ $= x (2x - a) (2x + a) (4x^2 + 2ax + a^2) (4x^2 - 2ax + a^2)$

$$z^2 - 5z + 25$$
)
 $x^9 + y^9 - 2$

$$(x^2 - 5z + 25)$$
 $x^9 + y^9 - 4$

$$z^2 - 5z + 25$$
)

$$z^2 - 5z + 25$$
)
 $x^9 + y^9 = 0$

$$z^{3} + 125 = z^{3} + 5^{3}$$

$$= (z + 5) (z^{2} - 5z + 25)$$

$$x^{9} + y^{9} = (x^{3})^{3} + (y^{3})^{3}$$

$$= (x^{3} + y^{3}) (x^{6} - x^{3}y^{3} + y^{6})$$
:

$$z^3 + 125$$
 $z^2 - 5z + 25$)
 $x^9 + y^9$

 $z^3 + 125$ = $z^3 + 5^3$ = $(z + 5)(z^2 - 5z + 25)$

=
$$(2x + 3y) (4x^2 - 6xy + 9y^2 - 3)$$

 $= (x + y) (x^2 - xy + y^2) (x^6 - x^3y^3 + y^6)$

 $= (m + n) (m^2 - mn + n^2) (m - n) (m^2 + mn + n^2)$ $= (m + n) (m - n) (m^2 + mn + n^2) (m^2 - mn + n^2)$

 $\mathbf{m}^6 - \mathbf{n}^6 = (\mathbf{m}^3)^2 - (\mathbf{n}^3)^2 - (\mathbf{m}^3 + \mathbf{n}^3) (\mathbf$

 $64x^7 - xa^6 = x (64x^6 - a^6)$

 $x^3 - 27a^3 = x^3 - (3a)^3$

 $x^3 + 27a^3 = x^3 + (3a)^3$

 $= x[(2x)^6 - a^6]$

 $= x [(2x)^3]^2 - [(a^3)^2)]$

 $= (x - 3a) (x^2 + 3ax + 9a^2)$

 $= (x + 3a) (x^2 - 3ax + 9a^2)$

 $= (m^3 + n^3) (m^3 - n^3)$