

# दिहुनगिरि बिजिरनाय

## सोंथि R-5

1. आगोसार दिहुनगिरि दिहुन:

(i)  $14pq, 28 p^2q^2$

(ii)  $16x^3 - 4x^2, 32 x$

(iii)  $20pq, 30qr, 40rp$

(iv)  $3x^2y^3, 10x^3y^2, 6x^2y^2z$

मावफुंथाइ :

(i)  $14pq, 28 p^2q^2$

$$14pq = 2 \times 7pq$$

$$28pq^2 = 2 \times 2 \times 7 p^2q^2$$

$$\therefore \text{बिसोरनि आगोसार दिहुनगिरि} = 2 \times 7pq \\ = 14pq$$

फिन :  $14pq$

(ii)  $16x^3 - 4x^2, 32 x$

$$16x^3 - 4x^2 = 4x (4x^2 - x)$$

$$32 x = 4x \times 8$$

$$\therefore \text{बिसोरनि आगोसार दिहुनगिरि} = 4x$$

फिन :  $4x$

(iii)  $20pq, 30qr, 40rp$

$$20pq = 2 \times 2 \times 5pq$$

$$30qr = 2 \times 3 \times 5 qr$$

$$40rp = 2 \times 2 \times 2 \times 5 \text{ rp}$$

$$\therefore \text{बिसोरनि आगोसार दिहुनगिरि} = 2 \times 5 \\ = 10$$

$$\text{फिन : } 10$$

$$(iv) 3x^2y^3, 10x^3y^2, 6x^2y^2z$$

$$3x^2y^3 = 3x^2y^3$$

$$10x^3y^2 = 2 \times 5 x^3y^2$$

$$6x^2y^2z = 2 \times 3 x^2y^2z$$

$$\therefore \text{बिसोरनि आगोसार दिहुनगिरि} = x^2y^2$$

$$\text{फिन : } x^2y^2$$

2. दिहुनगिरि बिजिर:

$$(i) 4a^2 + 8a^3$$

$$(ii) 7x^2y - 21xy^2$$

$$(iii) a^2bc + ab^2c + abc^2$$

$$(iv) a^3 - a^2b^2$$

मावफुंथाइ :

$$(i) 4a^2 + 8a^3$$

$$= 4a^2 + 8a^3$$

$$= 4a^2 (1 + 2a)$$

$$\text{फिन : } 4a^2 (1 + 2a)$$

$$(ii) 7x^2y - 21xy^2$$

$$= 7x^2y - 21xy^2$$

$$= 7xy (x - 3y)$$

$$\text{फिन : } 7xy (x - 3y)$$

$$(iii) a^2bc + ab^2c + abc^2$$

$$= a^2bc + ab^2c + abc^2$$

$$= abc (a + b + c)$$

$$\text{फिन : } abc (a + b + c)$$

$$(iv) a^3 - a^2b^2$$

$$= a^3 - a^2b^2$$

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

$$\text{फिन : } a^2 (a - b^2)$$

3. दिहुनगिरि फोरमाय:

$$(i) x^2 + xy + 6x + 6y$$

$$(ii) xy + x + y + 1$$

$$(iii) 24x^2y + 12x^2 - 21xy - 6x$$

$$(iv) z - 7 + 7xy - xyz$$

मावफुंथाइ :

$$(i) x^2 + xy + 6x + 6y$$

$$= x(x+y) + 6(x+y)$$

$$= (x+y)(x+6)$$

$$\text{फिन : } (x+y)(x+6)$$

$$(ii) xy + x + y + 1$$

$$= x(y+1) + 1(y+1)$$

$$= (x+1)(y+1)$$

$$\text{फिन : } (x+1)(y+1)$$

$$(iii) 24x^2y + 12x^2 - 12xy - 6x$$

$$= 6x (4xy + 2x - 2y - 1)$$

$$= 6x \{2x(2y+1) - 1(2y+1)\}$$

$$= 6x (2x-1) (2y+1)$$

$$\text{फिन : } 6x (2x-1) (2y+1)$$

$$(iv) z - 7 + 7xy - xyz$$

$$= z - xyz - 7 + 7xy$$

$$= z(1 - xy) - 7(1 - xy)$$

$$= (z-7)(1-xy)$$



फिन :  $(z - 7)(1 - xy)$

4. दिहुनगिरियाव फोरमाय:

(i)  $4x^2 + 12x + 9$  (ii)  $25m^2 + 30m + 9$

(iii)  $x^2 - 10x + 25$

(iv)  $121b^2 - 88bc + 16c^2$  (v)  $9p^2 - 16q^2$

(vi)  $(l + m)^2 - (l - m)^2$

(vii)  $x^2 - 13x - 30$  (viii)  $y^2 - 5y - 36$

(ix)  $4y^2 + 25y - 21$  (x)  $3x^6 - 6x^2y - 45x^2y^2$

मावफुंथाइ :

(i)  $4x^2 + 12x + 9$

$$\begin{aligned} 4x^2 + 12x + 9 &= (2x)^2 + 2 \cdot 2x \cdot 3 + 3^2 \\ &= (2x+3)^2 \\ &= (2x+3)(2x+3) \end{aligned}$$

फिन :  $(2x+3)(2x+3)$

(ii)  $25m^2 + 30m + 9$

मावफुंथाइ :

$$\begin{aligned} 25m^2 + 30m + 9 &= (5m)^2 + 2 \cdot 5m \cdot 3 + 3^2 \\ &= (5m + 3)^2 \\ &= (5m + 3)(5m + 3) \end{aligned}$$

फिन :  $(5m + 3)(5m + 3)$

(iii)  $x^2 - 10x + 25$

मावफुंथाइ :

$$\begin{aligned} x^2 - 10x + 25 &= x^2 - 2 \cdot x \cdot 5 + 5^2 \\ &= (x - 5)^2 \\ &= (x - 5)(x - 5) \end{aligned}$$

फिन :  $(x - 5)(x - 5)$

(iv)  $121b^2 - 88bc + 16c^2$

मावफुंथाइ :

$$\begin{aligned} 121b^2 - 88bc + 16c^2 &= (11b)^2 - 2 \cdot 11b \cdot 4c + (4c)^2 \\ &= (11b - 4c)^2 \\ &= (11b - 4c)(11b - 4c) \end{aligned}$$

फिन :  $(11b - 4c)(11b - 4c)$

(v)  $9p^2 - 16q^2$

मावफुंथाइ :

$$\begin{aligned} 9p^2 - 16q^2 &= (3p)^2 - (4q)^2 \\ &= (3p + 4q)(3p - 4q) \end{aligned}$$

फिन :  $(3p + 4q)(3p - 4q)$

(vi)  $(l + m)^2 - (l - m)^2$

मावफुंथाइ :

$$\begin{aligned} (l + m)^2 - (l - m)^2 &= \{(l + m) + (l - m)\} \{(l + m) - (l - m)\} \\ &= (l + m + l - m)(l + m - l + m) \\ &= 2l \times 2m \end{aligned}$$

फिन :  $4lm$

(vii)  $x^2 - 13x - 30$

मावफुंथाइ :

$$\begin{aligned} x^2 - 13x - 30 &= x^2 - (15 - 2)x - 30 \\ &= x^2 - 15x + 2x - 30 \\ &= x(x - 15) + 2(x - 15) \\ &= (x + 2)(x - 15) \end{aligned}$$

फिन :  $(x + 2)(x - 15)$

(viii)  $y^2 - 5y - 36$

मावफुंथाइ :

$$\begin{aligned}y^2 - 5y - 36 &= y^2 - (9 - 4)y - 36 \\&= y^2 - 9y + 4y - 36 \\&= y(y - 9) + 4(y - 9) \\&= (y + 4)(y - 9)\end{aligned}$$

फिन :  $(y + 4)(y - 9)$

(ix)  $4y^2 + 25y - 21$

मावफुंथाइ :

$$\begin{aligned}4y^2 + 25y - 21 &= 4y^2 + (28 - 3)y - 21 \\&= 4y^2 + 28y - 3y - 21 \\&= 4y(y + 7) - 3(y + 7) \\&= (4y - 3)(y + 7)\end{aligned}$$

फिन :  $(4y - 3)(y + 7)$

(x)  $3x^6 - 6x^2y - 45x^2y^2$

मावफुंथाइ :

$$\begin{aligned}3x^6 - 6x^2y - 45x^2y^2 \\&= 3x^2(x^4 - 2y - 15y^2)\end{aligned}$$

फिन :  $3x^2(x^4 - 2y - 15y^2)$

5. गाहायनि बांबिदाब राशिखौ से बिदाब राशिजों रान:

(i)  $3y^8 - 4y^6 + 5y^4 \div y^4$

(ii)  $(p^3q^3 - p^6q^3) \div$

$p^3q^3$

मावफुंथाइ:

(i)  $3y^8 - 4y^6 + 5y^4 \div y^4$

(ii)  $(p^3q^3 - p^6q^3) \div p^3q^3$



$$\begin{array}{r}
 3y^4 - 4y^2 + 5 \\
 y^4 \overline{) 3y^8 - 4y^6 + 5y^4} \\
 \underline{3y^8} \phantom{+ 5y^4} \\
 -4y^6 + 5y^4 \\
 \underline{-4y^6} \\
 5y^4 \\
 \underline{5y^4} \\
 0
 \end{array}$$

फिन :  $3y^4 - 4y^2 + 5$

$$\begin{array}{r}
 1 - p^3 \\
 p^3q^3 \overline{) p^3q^3 - p^6q^3} \\
 \underline{p^3q^3} \\
 -p^6q^3 \\
 \underline{-p^6q^3} \\
 0
 \end{array}$$

फिन :  $1 - p^3$

6. रानगासै दिहुन :

(i)  $(10x - 25) \div (2x - 5)$  (ii)  $20(y + 4)(y^2 + 5y + 3) \div 5(y + 4)$

मावफुंथाइ:

(i)  $(10x - 25) \div (2x - 5)$

$$\begin{aligned}
 &= \frac{10x - 25}{2x - 5} \\
 &= \frac{5(2x - 5)}{2x - 5} \\
 &= 5
 \end{aligned}$$

$\therefore$  दि.गो. रानगासै = 5

(ii)  $20(y + 4)(y^2 + 5y + 3) \div 5(y + 4)$

$$= \frac{20(y + 4)(y^2 + 5y + 3)}{5(y + 4)}$$

$$= 4(y^2 + 5y + 3)$$

फिन :  $4(y^2 + 5y + 3)$

7. दिहुनगिरियाव फोरमायना रानगासै दिहुन:

(i)  $(4u^2 + 25u - 21) \div (u + 7)$  (ii)  $(m^2 - 14m - 32) \div (m + 2)$

मावफुंथाइ (i)  $(4u^2 + 25u - 21) \div (u + 7)$

बेयाव,  $4u^2 + 25u - 21 = 4u^2 + (28 - 3)u - 21$

$$= 4u^2 + 28u - 3u - 21$$

$$= 4u(u + 7) - 3(u + 7)$$

$$= (4u - 3)(u + 7)$$

$$\therefore (4u^2 + 25u - 21) \div (u + 7)$$

$$= \frac{4u^2 + 25u - 21}{u + 7}$$

$$= \frac{(4u - 3)(u + 7)}{u + 7}$$

$$= 4u - 3$$

फिन :  $4u - 3$

(ii)  $(m^2 - 14m - 32) \div (m + 2)$

बेयाव,  $m^2 - 14m - 32 = m^2 - (16 - 2)m - 32$

$$= m^2 - 16m + 2m - 32$$

$$= m(m - 16) + 2(m - 16)$$

$$= (m - 16)(m + 2)$$

$$\therefore (m^2 - 14m - 32) \div (m + 2)$$

$$= \frac{m^2 - 14m - 32}{m + 2}$$

$$= \frac{(m - 16)(m + 2)}{m + 2}$$

$$= m - 16$$

फिन :  $m - 16$

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