Exercise 7A

Q1

Answer :

(i) $12x + 15 = 3(4x + 5)$
(ii) $14m - 21 = 7(2m - 3)$
(iii) $9n - 12n^2 = 3n(3 - 4n)$

Q2

Answer :

(i) H.C.F. of $16a^2$ and $24ab$ is $8a$.

$$\therefore 16a^2 - 24ab = 8a(2a - 3b)$$

(ii) H.C.F. of $15ab^2$ and $20a^2b$ is $5ab$.

$$\therefore 15ab^2 - 20a^2b = 5ab(3b - 4a)$$

(iii) H.C.F. of $12x^2y^3$ and $21x^3y^2$ is $3x^2y^2$.

$$\therefore 12x^2y^3 - 21x^3y^2 = 3x^2y^2(4y - 7x)$$

Q3

Answer :

(i) H.C.F. of $24x^3$ and $36x^2y$ is $6x^2$.

$$\therefore 24x^3 - 36x^2y = 6x^2(4x - 6y)$$

(ii) H.C.F. of $10x^3$ and $15x^2$ is $5x^3$.

$$\therefore 10x^3 - 15x^2 = 5x^2(2x - 3)$$

(iii) H.C.F. of $36x^3y$ and $60x^2y^3z$ is $12x^2y$.

$$\therefore 36x^3y - 60x^2y^3z = 12x^2y(3x - 5y^2z)$$

Q4

Answer :

(i) H.C.F. of $9x^3$, $6x^2$ and $12x$ is $3x$.

$$\therefore 9x^3 - 6x^2 + 12x = 3x(3x^2 - 2x + 4)$$

(ii) H.C.F. of $8x^3$, $72xy$ and $12x$ is $4x$.

$$\therefore 8x^3 - 72xy + 12x = 4x(2x^2 - 18y + 3)$$

(iii) H.C.F. of $18a^3b^3$, $27a^2b^3$ and $36a^3b^2$ is $9a^2b^2$.

$$\therefore 18a^3b^3 - 27a^2b^3 + 36a^3b^2 = 9a^2b^2(2ab - 3b + 4a)$$

Q5

Answer :

(i) H.C.F. of $14x^3$, $21x^4y$ and $28x^2y^2$ is $7x^2$.

$$\therefore 14x^3 + 21x^4y - 28x^2y^2 = 7x^2(2x + 3x^2y - 4y^2)$$

(ii) H.C.F. of -5, $-10t$ and $20t^2$ is 5.

$$\therefore -5 - 10t + 20t^2 = 5(-1 - 2t + 4t^2)$$

Q6

Answer :

(i) $x(x+3)+5(x+3)=(x+3)(x+5)$

(ii) $5x(x-4)-7(x-4)=(x-4)(5x-7)$

(iii) $2m(1-n)+3(1-n)=(1-n)(2m+3)$

Q7

Answer :

We have:
$6a(a-2b)+5b(a-2b)=(a-2b)(6a+5b)$

Q8

Answer :

We have:
$x^3(2a-b)+x^2(2a-b)=(2a-b)\left(x^3+x^2\right)=x^2(x+1)(2a-b)$

Q9

Answer :

We have:
$9a(3a-5b)-12a^2(3a-5b)=(3a-5b)\left(9a-12a^2\right)=3a(3a-5b)(3-4a)$

Q10

Answer :

We have:

$$\begin{aligned}(x+5)^2-4(x+5) &= (x+5)\{(x+5)-4\}\\ &= (x+5)(x+5-4)\\ &= (x+5)(x+1)\end{aligned}$$

$$\therefore (x+5)^2-4(x+5) = (x+5)(x+1)$$

Q11

Answer :

$$\begin{aligned}3(a-2b)^2-5(a-2b) &= (a-2b)\{3(a-2b)-5\}\\ &= (a-2b)(3a-6b-5)\end{aligned}$$

$$\therefore 3(a-2b)^2-5(a-2b) = (a-2b)(3a-6b-5)$$

Q12

Answer :

We have:

$$\begin{aligned}2a+6b-3(a+3b)^2 &= 2(a+3b)-3(a+3b)^2\\ &= (a+3b)\{2-3(a+3b)\}\\ &= (a+3b)(2-3a-9b)\end{aligned}$$

$$\therefore 2a+6b-3(a+3b)^2 = (a+3b)(2-3a-9b)$$

********** END **********