



MATHS

BOOKS - ARIHANT PUBLICATION

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HCF AND LCM

Solved Examples

1. The HCF of $x^3y^2z^5$ and $x^2y^4z^3$ is

A. $x^2y^2z^3$

B. xyz^3

C. xy^2z^3

D. $x^2y^2z^2$

Answer: A



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2. The HCF of $p(x) = 26(6x^4 - x^3 - 2x^2)$ and

$q(x) = 20(2x^6 + 3x^5 + x^4)$ is

A. $4x^2(2x + 1)$

B. $6x^3(2x - 1)$

C. $6x^2(2x + 1)$

D. $4x^2(2x - 1)$

Answer: A



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3. The HCF of $8x^4 - 16x^3 - 40x^2 + 48x$ and $16x^5 + 64x^4 + 80x^3 + 32x^2$ is

A. $4x(x + 2)$

B. $8x(x + 2)$

C. $2x(x - 2)$

D. $8x(x - 2)$

Answer: B



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4. The LCM of $12x^2y^3z^2$ and $18x^4y^2z^3$ is

A. $24x^4y^2z^2$

B. $32x^4yz^3$

C. $36x^4y^3z^3$

D. $21xyz$

Answer: C



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5. The LCM of $x^3 - 2x^2 - x + 2$ and

$x^3 - x^2 - 4x + 4$ is

A. $(x - 1)(x^2 - 4)$

B. $(x^2 - 1)(x^2 - 4)$

C. $(x^3 - 1)(x^3 - 4)$

D. $(x - 1)(x - 4)$

Answer: B



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6. The HCF of two polynomials is $x + 3$ and their LCM is $x^3 - 7x + 6$. If one of the polynomials is $x^2 + 2x - 3$. Then, the other polynomial is

A. $x^2 - x + 6$

B. $x^2 + x - 6$

C. $x^2 + x + 2$

D. $x^2 + x + 3$

Answer: B



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Exam Booster For Cracking Exam

1. The HCF of $\frac{x^3y}{m^2n^4}$, $\frac{x^2y^3}{m^2n^2}$ and $\frac{x^4y^2}{mn^3}$ is

A. $\frac{x^2y}{mn^2}$

B. $\frac{x^3y^2}{mn^2}$

C. $\frac{x^2y}{m^2n^4}$

D. $\frac{yx}{mn^2}$

Answer: A



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2. The LCM of $(x-1)(x-2)$ and $x^2(x-2)(x+3)$ is

A. $(x-1)$

B. $(x-1)(x-2)(x+3)$

C. $x^2(x-1)(x-2)(x+3)$

D. None of these

Answer: C



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3. The LCM of

$2(a^2 - b^2)$, $3(a^3 - b^3)$, $4(a^4 - b^4)$ is

A. $6(a - b)(a + b)(a^2 + b^2)$

B. $12(a^4 - b^4)(a^2 + ab + b^2)$

C. $a^3 - b^3$

D. $12(a^4 - b^4)$

Answer: B



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4. The HCF of $x^2 - xy - 2y^2$ and $2x^2 - xy - y^2$ is

A. $(x-y)$

B. $(x+y)$

C. $(2x-3y)$

D. None of these

Answer: D



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5. The HCF of two expressions a and b is 1.

Their LCM is

A. $(a+b)$

B. $(a-b)$

C. ab

D. $1/ab$

Answer: C



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6. The LCM of the polynomials

$$(x + 3)^2(x - 2)(x + 1)^2 \quad \text{and}$$

$$(x + 1)^3(x + 3)(x + 4) \text{ is}$$

A. $(x - 2)(x + 1)^3(x + 3)^2(x + 4)$

B. $(x - 2)(x + 1)^3(x + 3)(x + 4)$

C. $(x - 2)(x + 3)(x + 4)$

D. $(x - 2)^2(x + 1)(x + 3)^2(x + 4)$

Answer: A



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7. The HCF of $4y^4x - 9y^2x^3$ and $4y^2x^2 + 6yx^3$ is

A. $y^2x(2y + 3x)$

B. $yx(3x + 2y)$

C. $yx^2(x + 3)$

D. None of these

Answer: B



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8. The HCF of $2x^3 + 2x$, $x^2 + 1$, $x^4 - 1$ is

A. $(x^2 + 1)$

B. $(x - 1)$

C. 1

D. $(x + 1)$

Answer: A



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9. The LCM of the polynomials A and B, where

$$A = (x + 3)^2(x - 2)(x + 1)^2 \text{ and}$$

$$B = (x + 1)^2(x + 3)(x + 4), \text{ is given by}$$

A. $(x - 2)(x + 1)^2(x + 3)(x + 4)$

$$(x - 2)(x + 1)(x + 3)^2(x + 4)$$

B. $(x - 2)(x + 1)(x + 3)^2(x + 4)$

C. $(x + 1)(x - 2)(x + 3)(x + 4)$

D. $(x - 2)(x + 4)(x + 3)^2(x + 1)^2$

Answer: D





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10. For what value of x , $x^2 - 4x - 5$ and $x^3 - 4x^2 - 7x + 10$ eliminate ?

A. 4

B. 3

C. 5

D. None of these

Answer: C



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11. The HCF of two expressions is $3x^2 + 4x - 4$ and their LCM is $3x^4 + 4x^3 - 7x^2 - 4x - 8$.

One of the expressions is

A. $(x + 1)(3x^2 + 4x + 4)$

B. $(x - 1)(3x^2 + 4x - 4)$

C. $(x - 1)(3x^2 + 4x + 4)$

D. $(x + 1)(3x^2 + x - 4)$

Answer: B



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12. The HCF of two polynomials $4x^2(x^2 - 3x + 2)$ and $12x(x - 2)(x^2 - 4)$ is $4x(x - 2)$. The LCM of the two polynomials is :

A. $x^2(x^2 - 3x + 2)(x^2 - 4)$

B. $12x^2(x^2 - 3x + 2)(x^2 + 4)$

C. $4x(x - 2)$

D. $12x^2(x^2 - 3x + 2)(x^2 - 4)$

Answer: D



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13. For what value of x , $x^3 - 2x^2 - 2x - 3$ and $x^2 - 2x - 3$ becomes equal to zero ?

A. 3

B. 4

C. 0

D. 1

Answer: A



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14. The LCM and HCF of two polynomials $p(x)$ and $q(x)$ are $36x^3(x + a)(x^3 - a^3)$ and $x^2(x - a)$ respectively. If $p(x) = 4x(x^2 - a^2)$, then the value of $q(x)$ is

A. $9x^2(x^3 - a^3)$

B. $9x^3(x^3 - a^3)$

C. $4x^2(x^2 - a^2)$

D. None of these

Answer: B



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15. The LCM of two polynomials $p(x)$ and $q(x)$ is $x^3 - 7x + 6$. If $p(x) = (x^2 + 2x - 3)$ and $q(x) = (x^2 + x - 6)$, then the HCF is

A. $x + 3$

B. $x + 1$

C. $(x + 2)(x + 1)$

D. None of these

Answer: A



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16. If $(x+1)$ is the HCF of $(ax^2 + bx + c)$ and $(bx^2 + ax + c)$, then the value of c is

A. 0

B. 1

C. 2

D. 3

Answer: A



17. The volume of a cube is given by $V = x^3 - 9x^2 + 27x - 27$. The edge of the cube is

A. $(x+3)$

B. $3(x-3)$

C. $(x-3)$

D. None of these

Answer: C



18. The area of a square is given by $A = x^2 + 4x + 4$, then the diagonal of the square is

A. $(x-2)$

B. $(x+2)$

C. $\sqrt{2}(x - \sqrt{2})$

D. $\sqrt{2}(x + 2)$

Answer: D



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19. If $(x+k)$ is the HCF of $(x^2 + ax + b)$ and $(x^2 + px + q)$, then the value of k is

A. $\frac{a - b}{p + q}$

B. $\frac{q - b}{p - a}$

C. $\frac{b - q}{p - a}$

D. $\frac{q - b}{a - p}$

Answer: B



20. The area of a rhombus is $\frac{1}{2}x^2 + 2x + \frac{3}{2}$.

Then, its smaller diagonal is

A. $x+2$

B. $x+3$

C. $x+1$

D. None of these

Answer: C



21. The volume of a cuboid is $x^3 - 7x + 6$, then the longest side of cuboid is

A. $x + 3$

B. $x-1$

C. $x-2$

D. None of the above

Answer: A



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22. HCF and LCM of two polynomials are $(x+y)$

and

$$3x^5 + 5x^4y + 2x^3y^2 - 3x^2y^3 - 5xy^4 - 2y^5,$$

respectively. If one of the polynomials is

$(x^2 - y^2)$. Then, the other polynomial is

A. $3x^4 + 8x^3y + 10x^2y^2 + 2y^4$

B. $3x^4 + 8x^3y + 10x^2y^2 + 7xy^3 + 2y^4$

C. $3x^4 + 8x^3y + 10x^2y^2 + 7xy^3 + 2y^4$

D. None of the above

Answer: B



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23. If $(x-a)$ is the HCF of $x^2 - x - 6$ and $x^2 + 3x - 18$. Then, the value of a is

A. 3

B. 4

C. 1

D. 2

Answer: A



24. For what value of a , the HCF of $y^2 - 2y - 24$ and $y^2 - ay - 6$ is $(y-6)$?

A. 15

B. 5

C. 30

D. 6

Answer: B



