MATHS

BOOKS - ARIHANT PUBLICATION BIHAR

HCF AND LCM

Solved Examples

1. The HCF of $x^4y^2z^5$ 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 $p(x) = 24\left(6x^4 - x^3 - 2x^2\right)$ and $q(x) = 20\left(2x^6 + 3x^5 + x^4\right)$ 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. 21 xyz

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

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

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

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

C. a^3-b^3

D. $12\left(a^4-b^4\right)$

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

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

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

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

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. $\left(x^2 + 1\right)$

B. $(x - 1)$

C. 1

D. $(x + 1)$

Answer: A

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9. The LCM of the polynomials A and B, where $A = (x+3)^2(x-2)(x+1)^2$ and $B = (x+1)^2(x+3)(x+4)$, is given by

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

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 $3x^4 + 4x^3 - 7x^2 - 4x + 4$. One of the

expressions is

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

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

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

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

Answer: B

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12. The HCF of two polynomials $4x^2\left(x^2-3x+2\right)$ and $12x(x-2)\left(x^2-4\right)$ 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 $p(x) = \left(x^2 + 2x - 3\right)$ and $q(x) = \left(x^2 + x - 6\right)$, 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 $\left(ax^2+bx+c\right)$ and $\left(bx^2+ax+c\right)$, then the value of c is

A. 0

B. 2

C. 1

D. 3

Answer: A

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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

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

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

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

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

Answer: B

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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

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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 $\left(x^2 - y^2\right)$. 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. $3x^4 + 8xy^3 + 10x^2y^2 = 7xy^3 + 2y^4$

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

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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

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