MATHS

BOOKS - DEEPTI MATHS (TELUGU ENGLISH)

PARTIAL FRACTIONS

Solved Examples

1. If $\dfrac{1-11x}{(x+1)(x+6)(x-4)} = \dfrac{A}{x+1} + \dfrac{B}{x+6} + \dfrac{C}{x-4}$ then B =

A. $\dfrac{-12}{25}$

B. $\dfrac{-43}{50}$

C. $\dfrac{67}{50}$

D. $\dfrac{-67}{50}$

Answer: C

2. If $\dfrac{2x}{x^4 + x^2 + 1} = \dfrac{A}{x^2 - x + 1} + \dfrac{B}{x^2 + x + 1}$, then AB =

A. -1

B. $1/2$

C. 1

D. 2

Answer: A

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3. If $\dfrac{26x^2 + 208x}{(x^2 + 1)(x + 5)} = \dfrac{41x + 3}{x^2 + 1} + \dfrac{k}{x + 5}$, then k =

A. 15

B. 5

C. -5

D. -15

Answer: D

4. If $\dfrac{7x-1}{1-5x+6x^2}$ is expanded in ascending powers of x when $|x| < \dfrac{1}{3}$

then the coefficient of x^n is

A. $(-5)2^n + 4 \cdot 3^n$

B. $5 \cdot 2^n + (-4)3^n$

C. $-5.2^n + 4 \cdot 3^n$

D. $5.2^n + 4.3^n$

Answer: A

Exercise 1

1. The remainder obtained when the polynominal $1 + x + x^3 + x^9 + x^{27} + x^{81} + x^{243}$ is divided by x-1 is

A. 3

B. 5

C. 7

D. 11

Answer: C

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2. The remainder obtained when the polynominal $x^{64} + x^{27} + 1$ is divided by x+1 is

A. 1

B. -1

C. 2

D. -2

Answer: A

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3. The remainder obtained when the polynomial $x^3 - 3x^2 + 2x - 3$ is divided by x-2 is

A. 3

B. -3

C. 4

D. -4

Answer: B

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4. The remainder obtained when the polynomial $x^4 - 3x^3 + 9x^2 - 27x + 81$ is divided by x-3 is

A. 81

B. 243

C. 405

D. 18

Answer: A

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5. If the remainders of the polynomial $f(x)$ when divided by $x - 1, x - 2$ are 2, 5 then the remainder of $f(x)$ when divided by $(x - 1)(x - 2)$ is

A. 0

B. 1

C. 2

D. 3x-1

Answer: D

6. If the remainder of the polynomial $f(x)$ when divided by $x + 1$ and $x - 1$ are $7, 3$ then the remainder of $f(x)$ when devided by $x^2 - 1$ is

A. 3x+5

B. 2x+7

C. 2x+5

D. 3x+7

Answer: C

7. If the remainders of the polynomial $f(x)$ when divided by $x - 1$, $x - 2$ are 2, 5 then the remainder of $f(x)$ when divided by $(x - 1)(x - 2)$ is

A. 11

B. $x^2 + 3x + 7$

C. $x^2 - x + 1$

D. $x^2 + x + 1$

Answer: C

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8. The remainder of the polynomial $f(x)$ when divided by $x + 1$, $x + 2$, $x - 2$ are 6, 15, 3 the remainder of $f(x)$ when divided by $(x + 1)(x + 2)(x - 2)$ is

A. $2x^2 - 3x + 1$

B. $3x^2 - 2x + 1$

C. $2x^2 - x - 3$

D. $3x^2 - 2x + 1$

Answer: A

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9. Resolve into Partial Fractions

(i) $\dfrac{5x + 1}{(x + 2)(x - 1)}$

A. $\dfrac{3}{x + 2} + \dfrac{2}{x - 1}$

B. $\dfrac{2}{x + 2} + \dfrac{3}{x - 1}$

C. $\dfrac{3}{x - 2} + \dfrac{2}{x + 1}$

D. $\dfrac{2}{x - 2} + \dfrac{3}{x + 1}$

Answer: A

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10. $\dfrac{2x + 5}{(x - 1)(x - 2)} =$

A. $\dfrac{9}{x + 2} - \dfrac{7}{x - 1}$

B. $\dfrac{9}{x - 2} - \dfrac{7}{x - 1}$

C. $\dfrac{9}{x + 2} - \dfrac{7}{x + 1}$

D. $\dfrac{9}{x - 2} - \dfrac{7}{x - 1}$

Answer: D

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11. Resolve the following into partial fractions.

$$\dfrac{3x + 7}{x^2 - 3x + 2}$$

A. $\dfrac{5}{x - 1} + \dfrac{8}{x - 2}$

B. $\dfrac{13}{x - 2} - \dfrac{10}{x - 1}$

C. $\dfrac{8}{x - 1} + \dfrac{5}{x - 2}$

D. $\dfrac{2}{x - 1} + \dfrac{3}{x - 2}$

Answer: B

12. $\dfrac{1}{a^2 - x^2} =$

A. $\dfrac{1}{a(a - x)} + \dfrac{1}{2a(a + x)}$

B. $\dfrac{1}{3a(a - x)} + \dfrac{1}{2a(a + x)}$

C. $\dfrac{1}{2a(a - x)} + \dfrac{1}{2a(a + x)}$

D. $\dfrac{1}{2a(a - x)} + \dfrac{1}{a(a + x)}$

Answer: C

13. $\dfrac{1}{x^2 - a^2} =$

A. $\dfrac{1}{a(x - a)} + \dfrac{1}{2a(x + a)}$

B. $\dfrac{1}{3a(x-a)} + \dfrac{1}{2a(x+a)}$

C. $\dfrac{1}{2a(x-a)} - \dfrac{1}{2a(x+a)}$

D. $\dfrac{1}{2a(x-a)} + \dfrac{1}{a(x+a)}$

Answer: C

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14. The partial fractions of $\dfrac{1}{(x-1)(x+1)(x-2)}$ are

A. $\dfrac{1}{6(x+1)} + \dfrac{1}{2(x+1)} - \dfrac{1}{3(x-2)}$

B. $\dfrac{1}{6(x-1)} - \dfrac{1}{2(x-1)} + \dfrac{1}{3(x+2)}$

C. $\dfrac{1}{6(x+1)} + \dfrac{1}{2(x-1)} + \dfrac{1}{3(x+2)}$

D. $\dfrac{1}{6(x+1)} - \dfrac{1}{2(x-1)} + \dfrac{1}{3(x-2)}$

Answer: D

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15. The partial fractions of $\dfrac{1}{(1-x)(1-2x)(1-3x)}$ are

A. $\dfrac{1}{2(1+x)} + \dfrac{4}{1-2x} - \dfrac{9}{2(1-3x)}$

B. $\dfrac{1}{2(1-x)} - \dfrac{4}{1+2x} - \dfrac{9}{2(1-3x)}$

C. $\dfrac{1}{2(1-x)} - \dfrac{4}{1-2x} + \dfrac{9}{2(1-3x)}$

D. $\dfrac{1}{2(1+x)} + \dfrac{4}{1-2x} + \dfrac{9}{2(1-3x)}$

Answer: C

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16. $\dfrac{x^2 + x + 1}{(x-1)(x-2)(x-3)} = \dfrac{A}{x-1} + \dfrac{B}{x-2} + \dfrac{C}{x-3} \Rightarrow A + C =$

A. 4

B. 5

C. 6

D. 8

Answer: D

17.

$$\frac{1}{x(x+1)(x+2)...(x+n)} = \frac{A_0}{x} + \frac{A_1}{x+1} + \frac{A_2}{x+2} + ... + \frac{A_n}{x+n}, \, 0 \le$$

A. $(-1)^r \dfrac{r!}{(n-r)!}$

B. $(-1)^r \dfrac{1}{r!(n-r)!}$

C. $\dfrac{1}{r!(n-r)!}$

D. $\dfrac{r!}{(n-r)!}$

Answer: B

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18. $\dfrac{x+2}{x^3-x} =$

A. $\dfrac{1}{2(x+1)} + \dfrac{3}{2(x-1)} - \dfrac{2}{x}$

B. $\dfrac{1}{2(x+1)} - \dfrac{3}{2(x-1)} - \dfrac{2}{x}$

C. $\dfrac{1}{2(x+1)} - \dfrac{3}{2(x-1)} + \dfrac{2}{x}$

D. $\dfrac{1}{2(x+1)} + \dfrac{3}{2(x-1)} + \dfrac{2}{x}$

Answer: A

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19. $\dfrac{2x^2 - 1}{(x-1)(2x^2 + 5x + 2)} =$

A. $\dfrac{1}{9(x-1)} + \dfrac{7}{9(x+2)} + \dfrac{2}{9(2x+1)}$

B. $\dfrac{1}{9(x+1)} + \dfrac{7}{9(x-2)} - \dfrac{2}{9(2x-1)}$

C. $\dfrac{1}{9(x-1)} - \dfrac{7}{9(x-2)} + \dfrac{2}{9(2x+1)}$

D. $\dfrac{1}{9(x-1)} - \dfrac{7}{9(x+2)} - \dfrac{2}{9(2x-1)}$

Answer: A

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20. $\dfrac{5x^2 - 3x + 4}{(x + 1)(x^2 - 5x + 6)} =$

A. $\dfrac{1}{x + 1} + \dfrac{6}{x - 2} - \dfrac{10}{x - 3}$

B. $\dfrac{1}{x + 1} - \dfrac{6}{x - 2} + \dfrac{10}{x - 3}$

C. $\dfrac{1}{x - 1} + \dfrac{6}{x - 2} + \dfrac{10}{x - 3}$

D. $\dfrac{1}{x + 1} - \dfrac{6}{x + 2} + \dfrac{10}{x - 3}$

Answer: B

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21. Resolve $\dfrac{x^4}{(x - 1)(x - 2)}$ into partial fractions.

A. $x^2 + 3x + 7 - \dfrac{1}{x - 1} + \dfrac{16}{x - 2}$

B. $x^2 - 3x + 7 - \dfrac{1}{x - 1} + \dfrac{16}{x - 2}$

C. $x^2 + 3x - 7 + \dfrac{1}{x - 1} + \dfrac{16}{x - 2}$

D. $x^2 - 3x + 7 - \dfrac{1}{x+1} + \dfrac{16}{x-2}$

Answer: C

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22. Resolve $\dfrac{x^3}{(2x-1)(x+2)(x-3)}$ into Partial fractions.

A. $\dfrac{1}{2} + \dfrac{1}{50(2x-1)} - \dfrac{8}{25(x+2)} + \dfrac{27}{25(x-3)}$

B. $\dfrac{1}{2} - \dfrac{1}{50(2x-1)} - \dfrac{8}{25(x+2)} + \dfrac{27}{25(x-3)}$

C. $\dfrac{1}{2} + \dfrac{1}{50(2x-1)} - \dfrac{8}{25(x+2)} - \dfrac{27}{25(x-3)}$

D. $\dfrac{1}{2} - \dfrac{1}{50(2x-1)} + \dfrac{8}{25(x+2)} - \dfrac{27}{25(x+3)}$

Answer: B

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23.

$$\frac{x^3}{(2x-1)(x+2)(x-3)} = A + \frac{B}{2x-1} + \frac{C}{x+2} + \frac{D}{x-3} \Rightarrow A =$$

A. $1/2$

B. $-1/50$

C. $-8/25$

D. $27/25$

Answer: A

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24. $\dfrac{x^3 - 5}{x^2 - 3x + 2} =$

A. $x + 3 - \dfrac{4}{x-1} - \dfrac{3}{x-2}$

B. $x + 3 + \dfrac{4}{x-1} + \dfrac{3}{x-2}$

C. $x - 3 + \dfrac{4}{x-1} + \dfrac{3}{x-2}$

D. $x - 3 + \dfrac{4}{x - 1} - \dfrac{3}{x - 2}$

Answer: B

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25. If $\dfrac{x^2 + x + 1}{x^2 + 2x + 1} = A + \dfrac{B}{x + 1} + \dfrac{C}{(x + 1)^2}$ **then A - B =**

A. 4C

B. 4C+1

C. 3C

D. 2C

Answer: D

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26. $\dfrac{(x - a)(x - b)}{(x - c)(x - d)} = \dfrac{A}{x - c} - \dfrac{B}{x - d} + C \Rightarrow C =$

A. 5

B. 4

C. 3

D. 1

Answer: D

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27. If $\dfrac{A}{x-1} + \dfrac{B}{x+1} = \dfrac{6x}{x^2-1}$, then A =

A. 0

B. 1

C. 2

D. 3

Answer: D

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28. $$\frac{2x - 1}{(x - 1)(2x + 3)} = \frac{1}{5(x - 1)} - \frac{k}{5(2x + 3)}$$, then k =

A. 0

B. 1

C. 2

D. -8

Answer: D

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29. If $$\frac{5x + 6}{(2 + x)(1 - x)} = \frac{11}{3(1 - x)} + y$$ then y =

A. $\dfrac{-4}{3(2 + x)}$

B. $\dfrac{4}{3(2 + x)}$

C. $\dfrac{2}{3(2 - x)}$

D. $\dfrac{3}{2(2 + x)}$

Answer: A

30. If $\dfrac{3x + 4}{x^2 - 3x + 2} = \dfrac{A}{x - 2} - \dfrac{B}{x - 1}$ then (A, B) =

A. (7, 10)

B. (10, 7)

C. (10, -7)

D. (-10, 7)

Answer: B

31. If $\dfrac{2x + 3}{(x + 1)(x - 3)} = \dfrac{a}{x + 1} + \dfrac{b}{x - 3}$, then a + b =

A. 1

B. 2

C. 9/4

D. $-1/4$

Answer: B

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32. If $\dfrac{1}{(1 - 2x)(1 + 3x)} = \dfrac{A}{1 - 2x} + \dfrac{B}{1 + 3x}$, then 2B =

A. A

B. 2A

C. 3A

D. $-3A$

Answer: C

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33. $\dfrac{(x + 1)}{(2x - 1)(3x + 1)} = \dfrac{A}{(2x - 1)} + \dfrac{B}{(3x + 1)} \Rightarrow 16A + 9B =$

A. 4

B. 5

C. 6

D. 8

Answer: C

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34. If $\dfrac{x^2 - 10x + 13}{(x - 1)(x^2 - 5x + 6)} = \dfrac{A}{x - 1} + \dfrac{B}{x - 2} + \dfrac{C}{x - 3}$, then C =

A. -3

B. 2

C. -4

D. 5

Answer: C

35. If $\dfrac{x^2 + x + 1}{x^2 + 2x + 1} = A + \dfrac{B}{x + 1} + \dfrac{C}{(X + 1)^2}$, **then** $A + B + C =$

A. 0

B. 1

C. 2

D. 3

Answer: B

36. If $\dfrac{x^4}{(x - 1)(x + 2)} = \dfrac{1}{3(x - 1)} - \dfrac{16}{3(x + 2)} + x^2 - x + k$, **then** k =

A. 0

B. 1

C. 2

D. 3

Answer: D

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37. If $\dfrac{x^2 + 2}{(x^2 + 1)(x^2 + 3)} = \dfrac{Ax + B}{x^2 + 1} + \dfrac{Cx + D}{x^2 + 3}$ then $A + C + D =$

A. 0

B. 1

C. 1/2

D. 2/3

Answer: C

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38. If $\dfrac{3x+2}{(x+1)(2x^2+3)} = \dfrac{A}{x+1} + \dfrac{Bx+C}{2x^2+3}$, then $A+C-B=$

A. 0

B. 2

C. 3

D. 5

Answer: B

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39. If $\dfrac{1}{x^2-1} = \dfrac{1}{k}\left[\dfrac{1}{x-1} - \dfrac{1}{x+1}\right]$ then $k=$

A. 2

B. 3

C. 4

D. 5

Answer: A

40. If $\dfrac{1}{9 - x^2} = \dfrac{1}{k}\left[\dfrac{1}{3 - x} + \dfrac{1}{3 + x}\right]$ **then** $k =$

A. 2

B. 4

C. 6

D. 8

Answer: C

41. If $\dfrac{3x}{(x - 6)(x + a)} = \dfrac{2}{x - 6} + \dfrac{1}{x + a}$ **then** $a =$

A. 1

B. 2

C. 3

D. 6

Answer: C

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42. If $\dfrac{3x}{(x-k)(x+1)} = \dfrac{2}{x-k} + \dfrac{1}{x+1}$, then $k =$

A. 8

B. 4

C. 16

D. 2

Answer: D

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43. If $\dfrac{5x}{(x-2)(x+k)} = \dfrac{2}{x-2} + \dfrac{3}{x+k}$ then $k =$

A. 0

B. 1

C. 3

D. -3

Answer: C

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44. If $\dfrac{2x+3}{(x-3)(x+k)} = \dfrac{9}{4(x-3)} - \dfrac{1}{4(x+k)}$ then $k =$

A. 0

B. 1

C. 2

D. -2

Answer: B

45. If $\dfrac{3x - 6}{(x - 6)(x + k)} = \dfrac{2}{x - 6} + \dfrac{1}{x + k}$ then $k =$

A. 0

B. 1

C. 3

D. -3

Answer: A

46. If $\dfrac{x - 4}{x^2 - 5x - 2k} = \dfrac{2}{x - 2} - \dfrac{1}{x + k}$, then $k =$

A. -3

B. -2

C. 2

D. 3

Answer: A

47. If $\dfrac{x+1}{(x-a)(x-3)} = \dfrac{2}{x-a} + \dfrac{b}{x-3}$, then $(a, b) =$

A. (7, -1)

B. (-4, 1)

C. (4, 1)

D. (-4, -1)

Answer: A

48. If $\dfrac{3x}{(x-a)(x-b)} = \dfrac{2}{x-a} + \dfrac{1}{x-b}$ then $a:b =$

A. $1:2$

B. $-2:1$

C. $1:3$

D. $3:1$

Answer: B

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49. $\dfrac{x^2 + 5x + 7}{(x+1)^3} =$

A. $\dfrac{1}{x+1} + \dfrac{3}{(x+1)^2} + \dfrac{2}{(x+1)^3}$

B. $\dfrac{1}{x+1} + \dfrac{2}{(x+2)^2} + \dfrac{3}{(x+1)^3}$

C. $\dfrac{1}{x+1} + \dfrac{3}{(x+1)^2} + \dfrac{3}{(x+1)^3}$

D. $\dfrac{2}{x+1} + \dfrac{1}{(x+1)^2} + \dfrac{3}{(x+1)^3}$

Answer: C

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50. Resolve $\dfrac{x^4 + 24x^2 + 28}{\left(x^2 + 1\right)^3}$ into partial fractions.

A. $\dfrac{1}{x^2+1} + \dfrac{22}{\left(x^2+1\right)^2} + \dfrac{5}{\left(x^2+1\right)^3}$

B. $\dfrac{1}{x^2+1} + \dfrac{22}{\left(x^2+1\right)^2} - \dfrac{5}{\left(x^2+1\right)^2}$

C. $\dfrac{1}{x^2+1} - \dfrac{22}{\left(x^2+1\right)^2} - \dfrac{5}{\left(x^2+1\right)^2}$

D. $\dfrac{2}{x^2+1} - \dfrac{15}{\left(x^2+1\right)^2} + \dfrac{10}{\left(x^2+1\right)^2}$

Answer: A

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51. The partial fractions of $\dfrac{x^4 + 18x^2 + 22}{\left(x^2 + 2\right)^3}$ are

A. $\dfrac{1}{(x^2 + 2)^2} + \dfrac{14}{(x^2 + 5)^3}$

B. $\dfrac{1}{(x^2 + 2)} + \dfrac{14}{(x^2 + 2)^2} - \dfrac{10}{(x^2 + 2)^3}$

C. $\dfrac{1}{x + 1} + \dfrac{5}{(x^2 + 3)^2} + \dfrac{11}{(x^2 + 2)^3}$

D. none

Answer: B

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52.

$$\dfrac{3x^2 + x + 1}{(x - 1)^4} = \dfrac{a}{x - 1} + \dfrac{b}{(x - 1)^2} + \dfrac{c}{(x - 1)^3} + \dfrac{d}{(x - 1)^4} \Rightarrow \begin{bmatrix} a & b \\ c & d \end{bmatrix} =$$

A. $\begin{bmatrix} 3 & 7 \\ 5 & 0 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 3 \\ 7 & 5 \end{bmatrix}$

C. $\begin{bmatrix} 0 & 7 \\ 3 & 5 \end{bmatrix}$

D. $\begin{bmatrix} 3 & 5 \\ 7 & 0 \end{bmatrix}$

Answer: B

53. Resolve the following into partial fractions.

$$\frac{3x^2 - 8x^2 + 10}{(x-1)^4}$$

A. $\dfrac{3}{x-1} + \dfrac{1}{(x-1)^2} - \dfrac{7}{(x-1)^3} + \dfrac{5}{(x-1)^4}$

B. $\dfrac{3}{x-1} - \dfrac{1}{(x-1)^2} + \dfrac{7}{(x-1)^3} - \dfrac{5}{(x-1)^4}$

C. $\dfrac{3}{x-1} + \dfrac{1}{(x-1)^2} + \dfrac{7}{(x-1)^3} + \dfrac{5}{(x-1)^4}$

D. $\dfrac{3}{x-1} - \dfrac{1}{(X-1)^2} - \dfrac{7}{(x-1)^3} - \dfrac{5}{(x-1)^4}$

Answer: A

54. The partial fractions of $\dfrac{2x^3 + 3x^2 + 5x + 7}{(x+1)^5}$ are

A. $\dfrac{2}{(x+1)^2} - \dfrac{5}{(x+1)^3} + \dfrac{3}{(x+1)^4} + \dfrac{2}{(x+1)^5}$

B. $\dfrac{3}{(x+1)^2} - \dfrac{2}{(x+1)^3} + \dfrac{5}{(x+1)^4} + \dfrac{3}{(x+1)^5}$

C. $\dfrac{5}{(x+1)^2} - \dfrac{2}{(x+1)^3} + \dfrac{3}{(x+1)^4} + \dfrac{2}{(x+1)^5}$

D. $\dfrac{2}{(x+1)^2} - \dfrac{3}{(x+1)^3} + \dfrac{5}{(x+1)^4} + \dfrac{3}{(x+1)^5}$

Answer: D

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55. If $\dfrac{x^2 + 5}{(x^2 + 2)^2} = \dfrac{1}{x^2 + 2} + \dfrac{k}{(x^2 + 2)^2}$ **then** $k =$

A. 1

B. 2

C. 3

D. 4

Answer: C

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56. If $\dfrac{x^2 + 2x + 3}{x^3} = \dfrac{A}{x} + \dfrac{B}{x^2} + \dfrac{C}{x^3},$ then $A + B - C =$

A. 0

B. 1

C. 2

D. 3

Answer: A

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57. If $\dfrac{x^2 - 5x + 7}{(x-1)^3} = \dfrac{A}{x-1} + \dfrac{B}{(x-1)^2} + \dfrac{C}{(x-1)^3}$ then $A + B - C =$

A. 5

B. 3

C. 0

D. -5

Answer: D

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58. If

$$\frac{3x^2 + x + 1}{(x-1)^4} = \frac{A}{x-1} + \frac{B}{(x-1)^2} + \frac{C}{(x-1)^3} + \frac{D}{(x-1)^4} \quad \text{then} \quad A + B$$

A. 0

B. 15

C. 1

D. 10

Answer: C

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59. $\dfrac{x+1}{x^4(x+2)} = \dfrac{A}{x} + \dfrac{B}{x^2} + \dfrac{C}{x^3} + \dfrac{D}{x^4} + \dfrac{E}{x+2} \Rightarrow B + D + E =$

A. A+C

B. A-C

C. 2A+C

D. 2A+2C

Answer: A

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60. $\dfrac{1}{(x-1)^2(x+1)} =$

A. $\dfrac{1}{4(x+1)} - \dfrac{1}{4(x-1)} + \dfrac{1}{2(x-1)^2}$

B. $\dfrac{1}{4(x-1)} - \dfrac{1}{4(x+1)} + \dfrac{1}{2(x-1)^2}$

C. $\dfrac{1}{4(x-1)} - \dfrac{1}{4(x+1)} + \dfrac{1}{2(x-1)^2}$

D. $\dfrac{1}{4(x+1)} - \dfrac{1}{4(x+1)} + \dfrac{1}{2(x-1)^2}$

Answer: A

61. $\dfrac{x+1}{(x-1)^2(x-2)} =$

A. $\dfrac{3}{x-2} - \dfrac{3}{x-1} - \dfrac{2}{(x-1)^2}$

B. $\dfrac{2}{x-2} - \dfrac{3}{x-1} - \dfrac{2}{(x-1)^2}$

C. $\dfrac{3}{x-2} - \dfrac{2}{x-1} - \dfrac{2}{(x-1)^2}$

D. $\dfrac{2}{x-2} - \dfrac{3}{x-1} - \dfrac{3}{(x-1)^2}$

Answer: A

62. $\dfrac{2x^2 - 3x + 4}{x^2(x+1)^2} =$

A. $\dfrac{11}{x+1} + \dfrac{9}{(x+1)^2} - \dfrac{11}{x} + \dfrac{4}{x^2}$

B. $\dfrac{4}{x+1} + \dfrac{11}{(x+1)^2} - \dfrac{9}{x} + \dfrac{11}{x^2}$

C. $\dfrac{9}{x+1} + \dfrac{4}{(x+1)^2} - \dfrac{11}{x} + \dfrac{4}{x^2}$

D. $\dfrac{11}{x+1} + \dfrac{9}{(x+1)^2} - \dfrac{11}{x} + \dfrac{4}{x^2}$

Answer: A

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63. $\dfrac{x^4 + 2}{(x-1)^2(x+1)} =$

A. $x + 1 + \dfrac{3}{4(x-1)} + \dfrac{3}{2(x-1)^2} + \dfrac{5}{4(x+1)}$

B. $x + 1 + \dfrac{5}{4(x-1)} + \dfrac{3}{2(x-1)^2} + \dfrac{5}{4(x+1)}$

C. $x + 1 + \dfrac{5}{4(x-1)} + \dfrac{3}{2(x-1)^2} + \dfrac{3}{4(x+1)}$

D. $x + 1 + \dfrac{5}{4(x-1)} + \dfrac{5}{2(x-1)^2} + \dfrac{3}{4(x+1)}$

Answer: C

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64. Resolve the following into partial fractions.

$$\frac{2X^2 + 2x + 1}{x^3 + x^2}$$

A. $\dfrac{1}{x} - \dfrac{1}{x^2} - \dfrac{1}{x + 1}$

B. $\dfrac{1}{x} - \dfrac{1}{x^2} + \dfrac{1}{x + 1}$

C. $\dfrac{1}{x} + \dfrac{1}{x^2} - \dfrac{1}{x + 1}$

D. $\dfrac{1}{x} + \dfrac{1}{x^2} + \dfrac{1}{x + 1}$

Answer: D

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65.   If

$$\frac{x^4 + 3x + 1}{(x + 1)^2(x - 1)} = Ax + B + \frac{C}{x + 1} + \frac{D}{(x + 1)^2} + \frac{E}{x - 1} \quad \text{then} \quad A + D$$

A. 2

B. 2

C. $3/2$

D. 0

Answer: C

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66.   If

$$\frac{x^4 + 2}{(x-1)^2(x+1)} = Ax + B + \frac{C}{x-1} + \frac{D}{(x-1)^2} + \frac{E}{x+1} \quad \text{then} \quad A+D$$

A. 0

B. 1

C. $3/4$

D. $3/2$

Answer: B

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67. If $\dfrac{3x + 4}{(x + 1)^2(x - 1)} = \dfrac{A}{x - 1} + \dfrac{B}{x + 1} + \dfrac{C}{(x + 1)^2}$ **then** $A =$

A. $-1/2$

B. $15/4$

C. $7/4$

D. $-1/4$

Answer: C

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68. $\dfrac{2x^2 + 3x + 4}{(x - 1)(x^2 + 2)} =$

A. $\dfrac{3}{x - 1} + \dfrac{2 - x}{x^2 - 2}$

B. $\dfrac{3}{x - 1} - \dfrac{2 - x}{x^2 + 2}$

C. $\dfrac{3}{x - 1} + \dfrac{2 - x}{x^2 + 2}$

D. $\dfrac{3}{x + 1} - \dfrac{2 - x}{x^2 - 2}$

Answer: C

69. $\dfrac{42 - 19x}{(x^2 + 1)(x - 4)} =$

A. $\dfrac{2x - 11}{x^2 - 1} - \dfrac{2}{x + 4}$

B. $\dfrac{2x - 11}{x^2 + 1} - \dfrac{2}{x - 4}$

C. $\dfrac{2x + 11}{x^2 + 1} - \dfrac{2}{x + 4}$

D. $\dfrac{2x + 11}{x^2 - 1} - \dfrac{2}{x - 4}$

Answer: B

70. $\dfrac{x + 2}{x(x^2 + 1)} =$

A. $\dfrac{2}{x} - \dfrac{1 - 2x}{x^2 + 1}$

B. $\dfrac{2}{x} + \dfrac{1 - 2x}{x^2 - 1}$

C. $\dfrac{2}{x} - \dfrac{1 - 2x}{x^2 - 1}$

D. $\dfrac{2}{x} + \dfrac{1 - 2x}{x^2 + 1}$

Answer: D

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71. Resolve the following into partial fractions.

$$\dfrac{2x - 1}{(1 - x - x^2)(x + 2)}$$

A. $\dfrac{x}{x^2 - x + 1} + \dfrac{1}{x + 2}$

B. $\dfrac{x}{x^2 + x + 1} + \dfrac{2}{x + 2}$

C. $\dfrac{x}{x^2 - x + 1} - \dfrac{1}{x + 2}$

D. $\dfrac{x}{x^2 - x + 1} - \dfrac{2}{x + 2}$

Answer: C

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72. $\dfrac{3x + 1}{1 - x^3} =$

A. $\dfrac{4}{3(1 + x)} + \dfrac{4x - 1}{3(1 + x - x^2)}$

B. $\dfrac{4}{3(1 - x)} + \dfrac{4x - 1}{3(1 + x - x^2)}$

C. $\dfrac{4}{3(1 - x)} + \dfrac{4x - 1}{3(1 + x + x^2)}$

D. $\dfrac{4}{3(1 + x)} + \dfrac{4x - 1}{3(1 + x + x^2)}$

Answer: C

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73. $\dfrac{1}{(x - a)(x^2 + b)} =$

A. $\dfrac{1}{(a^2 + b)(x - a)} + \dfrac{x + a}{(a^2 - b)(x^2 + b)}$

B. $\dfrac{1}{(a^2 + b)(x + a)} - \dfrac{x + a}{(a^2 + b)(x^2 + b)}$

C. $\dfrac{1}{(a^2 - b)(x + a)} + \dfrac{x + a}{(a^2 + b)(x^2 - b)}$

D. $\dfrac{1}{(a^2 + b)(x - a)} - \dfrac{x + a}{(a^2 + b)(x^2 + b)}$

Answer: D

74. $\dfrac{1}{x^4+1} =$

A. $\dfrac{x+\sqrt{2}}{2\sqrt{2}\left(x^2+\sqrt{2}x-1\right)} + \dfrac{\sqrt{2}-x}{2\sqrt{2}\left(x^2+\sqrt{2}x-1\right)}$

B. $\dfrac{x+\sqrt{2}}{2\sqrt{2}\left(x^2+\sqrt{2}x+1\right)} + \dfrac{\sqrt{2}-x}{2\sqrt{2}\left(x^2-\sqrt{2}x+1\right)}$

C. $\dfrac{x+sqr(2)}{2\sqrt{2}\left(x^2+\sqrt{2}x-1\right)} + \dfrac{\sqrt{2}-x}{2\sqrt{2}\left(x^2-\sqrt{2}x+1\right)}$

D. $\dfrac{x+\sqrt{2}}{2\sqrt{2}\left(x^2-\sqrt{2}x+1\right)} + \dfrac{\sqrt{2}-x}{2\sqrt{2}\left(x^2-\sqrt{2}x+1\right)}$

Answer: B

75. $\dfrac{1}{x^4+x^2+1} =$

A. $\dfrac{x+1}{2(x^2+x-1)} + \dfrac{1-x}{2(x^2+x-1)}$

B. $\dfrac{x+1}{2(x^2-x+1)} + \dfrac{1-x}{2(x^2-x+1)}$

C. $\dfrac{x+1}{2(x^2+x+1)} + \dfrac{1-x}{2(x^2-x+1)}$

D. $\dfrac{x+1}{2(x^2+x-1)} + \dfrac{1-x}{2(x^2-x+1)}$

Answer: C

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76. If $\dfrac{1}{x^4+x^2+1} = \dfrac{Ax+B}{x^2+x+1} + \dfrac{Cx+D}{x^2-x+1}$ **then** $C+D =$

A. -1

B. 1

C. 2

D. 0

Answer: D

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77. If $\dfrac{2x+1}{(x-1)(x^2+1)} = \dfrac{A}{x-1} + \dfrac{Bx+C}{x^2+1}$ then $A+B+C =$

A. $1/4$

B. 3

C. $1/2$

D. 4

Answer: C

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78. If $\dfrac{2x^2+3x+4}{(x-1)(x^2+2)} = \dfrac{A}{x-1} + \dfrac{Bx+C}{x^2+2}$, then $B =$

A. 0

B. 1

C. -1

D. 2

Answer: C

79. If $\dfrac{A}{x} + \dfrac{Bx}{x^2 + 1} = \dfrac{5x^2 + 2}{x^3 + x}$, then $B =$

A. 1

B. 2

C. 3

D. 4

Answer: C

80. If $\dfrac{(x + 1)^2}{x^3 + x} = \dfrac{A}{x} + \dfrac{Bx + C}{x^2 + 1}$ then $\sin^{-1}\left(\dfrac{A}{C}\right) =$

A. $\dfrac{\pi}{6}$

B. $\dfrac{\pi}{4}$

C. $\dfrac{\pi}{3}$

D. $\dfrac{\pi}{2}$

Answer: A

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81. $\dfrac{2x^3 + x^2 - 5}{x^4 - 25} = \dfrac{Ax + B}{x^2 - 5} + \dfrac{Cx + 1}{x^2 + 5} \Rightarrow (A, B, C) =$

A. (1, 1, 0)

B. (1, 0, 1)

C. (1, 2, 1)

D. (1, 1, 1)

Answer: B

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82. If $\dfrac{ax-1}{(1-x+x^2)(2+x)} = \dfrac{x}{1-x+x^2} - \dfrac{1}{2+x}$ then $a =$

A. 2

B. 3

C. -3

D. -2

Answer: B

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83. If $\dfrac{3x^3-2x^2-1}{x^4+x^2+1} = \dfrac{Ax+B}{x^2+x+1} + \dfrac{Cx+D}{x^2+kx+1}$ then $k =$

A. 0

B. 1

C. -1

D. 2

Answer: C

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84. $\dfrac{x}{(x-1)(x^2+1)^2} =$

A. $\dfrac{1}{4(x-1)} - \dfrac{x-1}{4(x^2+1)} + \dfrac{1+x}{2(x^2-1)^2}$

B. $\dfrac{1}{4(x+1)} - \dfrac{x+1}{4(x^2+1)} + \dfrac{1+x}{2(x^2-1)^2}$

C. $\dfrac{1}{4(x-1)} - \dfrac{x+1}{4(x^2+1)} + \dfrac{1-x}{2(x^2+1)^2}$

D. $\dfrac{1}{4(x+1)} - \dfrac{x-1}{4(x^2+1)} + \dfrac{1-x}{2(x^2+1)^2}$

Answer: C

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85. $\dfrac{1}{(x-3)(x^2+1)^2} =$

A. $\dfrac{1}{100(x-3)} - \dfrac{x+3}{100(x^2+1)} - \dfrac{x+3}{10(x^2+1)^2}$

B. $\dfrac{1}{100(x+3)} - \dfrac{x+3}{100(x^2+1)} - \dfrac{x+3}{10(x^2+1)^2}$

C. $\dfrac{1}{100(x-3)} - \dfrac{x+3}{100(x^2-1)} - \dfrac{x+3}{10(x^2-1)^2}$

D. $\dfrac{1}{100(x+3)} - \dfrac{x+3}{100(x^2-1)} - \dfrac{x+3}{10(x^2+1)^2}$

Answer: A

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86. $\dfrac{2x-3}{(x-1)(x^2+1)^2} =$

A. $\dfrac{x+1}{4(x^2+1)} + \dfrac{x+5}{2(x^2+1)^2} - \dfrac{1}{4(x-1)}$

B. $\dfrac{x+1}{4(x^2+1)} + \dfrac{x-5}{2(x^2+1)^2} - \dfrac{1}{4(x-1)}$

C. $\dfrac{x+1}{4(x^2+1)} + \dfrac{x+5}{2(x^2-1)^2} - \dfrac{1}{4(x+1)}$

D. $\dfrac{x+1}{4(x^2-1)} + \dfrac{x+5}{2(x^2+1)^2} - \dfrac{1}{4(x-1)}$

Answer: A

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87. If $\dfrac{1}{(ax+b)(cx+d)} = \dfrac{A}{ax+b} + \dfrac{B}{cx+d}$ then

$\dfrac{1}{(ax+b)^2(cx+d)} =$

A. $\dfrac{A}{(ax-b)^2} + \dfrac{AB}{ax-b} + \dfrac{B^2}{cx+d}$

B. $\dfrac{A}{(ax+b)^2} + \dfrac{AB}{ax-b} + \dfrac{B^2}{cx+d}$

C. $\dfrac{A}{(ax+b)^2} + \dfrac{AB}{ax+b} + \dfrac{B^2}{cx+d}$

D. $\dfrac{A}{(ax-b)^2} + \dfrac{AB}{ax+b} + \dfrac{B^2}{cx-d}$

Answer: C

88. If $\dfrac{1}{(x-a)(x^2+b)} = \dfrac{A}{x-a} + \dfrac{Bx+C}{x^2+b}$ then $\dfrac{1}{(x-a)(x^2+b)^2} =$

A. $\dfrac{A^2}{x-a} + \dfrac{A(Bx+C)}{x^2+b} + \dfrac{Bx+C}{(x^2+b)^2}$

B. $\dfrac{A^2}{x+a} + \dfrac{A(Bx-C)}{x^2+b} + \dfrac{Bx+C}{(x^2-b)^2}$

C. $\dfrac{A^2}{x+a} + \dfrac{A(Bx+C)}{x^2+b} + \dfrac{Bx-C}{(x^2+b)^2}$

D. $\dfrac{A^2}{x-a} + \dfrac{A(Bx-C)}{x^2-b} + \dfrac{Bx+C}{(x^2-b)^2}$

Answer: A

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89. To find the coefficient of x^4 in the expansion of $\dfrac{3x}{(x-2)(x-1)}$, the interval in which the expansion is valid, is

A. $-2 < x < \infty$

B. $-\dfrac{1}{2} < x < \dfrac{1}{2}$

C. $-1 < x < 1$

D. $-\infty < x < \infty$

Answer: C

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90. The coefficient of x^3 in $\dfrac{5x + 6}{(2 + x)(1 - x)}$ is

A. $15/2$

B. $15/4$

C. $5/2$

D. $5/4$

Answer: B

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91. If $|x| < 1$ then the coefficient of x^2 in the expansion of $\dfrac{3x}{(x - 2)(x + 1)}$ is

A. $\dfrac{33}{32}$

B. $-\dfrac{33}{32}$

C. $\dfrac{31}{32}$

D. $-\dfrac{31}{32}$

Answer: B

92. The coefficient of x^n in the expansion of $\dfrac{1}{x^2 - 5x + 6}$ for $|x| < 1$ is

A. $\dfrac{1}{2^{n-1}} - \dfrac{1}{3^{n-1}}$

B. $\dfrac{1}{2^{n+2}} - \dfrac{1}{3^{n+2}}$

C. $\dfrac{1}{2^{n+1}} - \dfrac{1}{3^{n-1}}$

D. $\dfrac{1}{2^n} - \dfrac{1}{3^n}$

Answer: C

93. The coefficient of x^n in $\dfrac{x - 4}{x^2 - 5x + 6}$ is

A. $\dfrac{1}{3^{n+1}} - \dfrac{1}{2^n}$

B. $\dfrac{1}{3^{n+1}} + \dfrac{1}{2^n}$

C. $\dfrac{1}{5^{n+1}} + \dfrac{1}{2^n}$

D. $\dfrac{1}{5^{n+1}} + \dfrac{1}{3^n}$

Answer: A

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94. If $\dfrac{x-4}{x^2 - 5x + 6}$ can be expanded in the ascending powers of x, then the coefficient of x^3 is

A. $\dfrac{-73}{648}$

B. $\dfrac{73}{648}$

C. $\dfrac{71}{648}$

D. $\dfrac{-71}{648}$

Answer: A

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95. The coefficient of x^n in $\dfrac{x}{(x-a)(x-b)}$ is

A. $\dfrac{a^n + b^n}{a-b} \cdot \dfrac{1}{a^n b^n}$

B. $\dfrac{a^n - b^n}{a-b} \cdot \dfrac{1}{a^n b^n}$

C. $\dfrac{a^n - b^n}{a+b} \cdot \dfrac{1}{a^n b^n}$

D. $\dfrac{a^n - b^n}{a-b} a^n b^n$

Answer: B

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96. The coefficient of x^n in $\dfrac{1}{(1-2x)(1-3x)}$ is

A. $3^{n+1} - 2^{n+1}$

B. $3^{n+1} + 2^{n+1}$

C. $3^{n+1} - 2^{n-1}$

D. $3^{n-1} + 2^{n-1}$

Answer: A

97. For $|x| < \dfrac{1}{5}$, the coefficient of x^3 in the expansion of $\dfrac{1}{(1 - 5x)(1 - 4x)}$ is

A. 369

B. 370

C. 371

D. 372

Answer: A

98. If the expansion in powers of x of the function $\dfrac{1}{(1 - ax)(1 - bx)}$ is

$a_0 + a_1 x + a_2 x^2 + a_3 x^3 + \dots + a_n$ then coefficient of x^n is

A. $\dfrac{a^{n+1} - b^{n+1}}{b - a}$

B. $\dfrac{b^{n+1} - a^{n+1}}{b - a}$

C. $\dfrac{b^n - a^n}{b - a}$

D. $\dfrac{a^n - b^n}{b - a}$

Answer: B

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99. The coefficient of x^n in $\dfrac{1}{(1 - x)(1 - 2x)(1 - 3x)}$ is

A. $\dfrac{3^{n+2} - 2^{n+3} + 1}{2}$

B. $\dfrac{3^{n+2} + 2^{n+3} - 1}{2}$

C. $\dfrac{3^{n+2} - 2^{n+3} - 1}{2}$

D. $\dfrac{3^{n+2} + 2^{n+3} + 1}{2}$

Answer: A

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100. The coefficient of x^n in $\dfrac{(1+x)(1-2x)(1-3x)}{(1-x)(1-2x)(1-3x)}$ is

A. $12 - 30 \cdot 2^n + 20 \cdot 3^n$

B. $12 + 30 \cdot 2^n + 20 \cdot 3^n$

C. $12 + 30 \cdot 2^n - 20 \cdot 3^n$

D. $12 - 30 \cdot 2^n + 20 \cdot 3^n$

Answer: A

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101. The coefficient of x^n in $\dfrac{x+1}{(x-1)^2(x-2)}$ is

A. $1 - n - \dfrac{1}{2^n}$

B. $1 - n + \dfrac{1}{2^n}$

C. $1 + n - \dfrac{1}{2^n}$

D. $1 + n + \dfrac{1}{2^n}$

Answer: A

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102. The coefficient of x^n in $\dfrac{x+1}{(x-1)^2(x-2)}$ is

A. $1 - 2n - \dfrac{3}{2^{n+1}}$

B. $1 - 2n - \dfrac{3}{2^{n-1}}$

C. $1 + 2n + \dfrac{3}{2^{n+1}}$

D. $1 + 2n - \dfrac{3}{2^{n-1}}$

Answer: A

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103. For $|x| < 1$, the constant term in the expansion of $\dfrac{1}{(x-1)^2(x-2)}$

is :

A. 2

B. 1

C. 0

D. $-1/2$

Answer: D

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104. The coefficient of x^5 in $\dfrac{x^2+1}{(x^2+4)(x-2)}$ is

A. $\dfrac{-1}{199}$

B. $\dfrac{-1}{198}$

C. $\dfrac{-1}{277}$

D. $\dfrac{-1}{256}$

Answer: D

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105. The coefficient of x^4 in $\dfrac{3x^2 + 2x}{(x^2 + 2)(x - 3)}$ is

A. $\dfrac{75}{326}$

B. $\dfrac{77}{324}$

C. $\dfrac{66}{248}$

D. $\dfrac{58}{226}$

Answer: B

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Exercise 2 Set 1

1. The remainder obtained when the polynominal

$1 + x + x^3 + x^9 + x^{27} + x^{81} + x^{243}$ is divided by x-1 is

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: C

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2. I : The partial fractions of

$\dfrac{2x + 3}{(x + 1)(x - 3)}$ are $\dfrac{9}{4(x - 3)} - \dfrac{1}{4(x + 1)}$.

II : The partial fractions of $\dfrac{2}{(x + 1)(x + 3)}$ are $\dfrac{1}{x + 1} - \dfrac{1}{x + 3}$.

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: C

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3.I : If $\dfrac{x^2 + x + 1}{x^2 + 2x + 1} = A + \dfrac{B}{x + 1} + \dfrac{C}{(x + 1)^2}$ then $A + B + C = 0$.

II : If $\dfrac{x^2 + 2x + 3}{x^3} = \dfrac{A}{x} + \dfrac{B}{x}(2) + \dfrac{C}{x^3}$ then $A + B - C = 0$.

A. only I is true

B. only II is true

C. both I and II are true

D. neither I nor II true

Answer: B

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1. If $\dfrac{x^2 + 5x + 7}{(x - 1)^3} = \dfrac{A}{x - 1} + \dfrac{B}{(x - 1)^2} + \dfrac{C}{(x - 1)^3}$ then the ascending order of A, B, C is

A. A, B, C

B. B, C, A

C. C, A, B

D. B, A, C

Answer: A

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2. If $\dfrac{2x^2 + 3x + 4}{(x - 1)(x^2 + 2)} = \dfrac{A}{x - 1} + \dfrac{Bx + C}{x^2 + 2}$ then the ascending order of A, B, C is

A. A, B, C

B. B, C, A

C. C, A, B

D. B, A, C

Answer: B

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3. If $\dfrac{x^2 + 13x + 15}{(2x + 3)(x + 3)^2} = \dfrac{A}{2x + 3} + \dfrac{B}{x + 3} + \dfrac{C}{(x + 3)^2}$ then the descending order of A, B, C is

A. A, B, C

B. B, C, A

C. C, B, A

D. B, A, C

Answer: C

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1. Match the following.

$I.$ If $\dfrac{3x}{(x-6)(x+k)} = \dfrac{2}{x-6} + \dfrac{1}{x+k}$ then $k =$ a) 0

$II.$ If $\dfrac{3x-6}{(x-6)(x+k)} = \dfrac{2}{x-6} + \dfrac{1}{x+k}$ then $k =$ b) 3

$III.$ If $\dfrac{x-4}{x^2-5x-2k} = \dfrac{2}{x-2} - \dfrac{1}{x+k}$ then $k =$ c) -1

$IV.$ If $\dfrac{3x^3-2x^2-1}{x^4+x^2+1} = \dfrac{Ax+B}{x^2+x+1} + \dfrac{Cx+D}{x^2+kx+1}$ then $k =$ d) -3

A. c, d, a, b

B. b, a, d, c

C. c, a, b, d

D. c, b, a, d

Answer: B

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2. Match the following.

$I.$ If $\dfrac{5x^2+2}{x^3+x} = \dfrac{A}{x} + \dfrac{Bx}{x^2+1}$ then $B =$ a) 2

$II.$ If $\dfrac{4x}{x^2-1} = \dfrac{A}{x-1} + \dfrac{B}{x+1}$ then $A =$ b) 3

$III.$ If $\dfrac{3x+2}{2-x-x^2} = \dfrac{A}{2+x} + \dfrac{B}{1-x}$ then $A =$ c) $-3/2$

$IV.$ If $\dfrac{2x+1}{(x-1)(x^2+1)} = \dfrac{A}{x-1} + \dfrac{Bx+C}{x^2+1}$ then $B =$ d) $-4/3$

A. c, d, a, b

B. b, a, d, c

C. c, a, b, d

D. c, b, a, d

Answer: B

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3.   If

$$\dfrac{2x^3 + 3x^2 + 5x + 7}{(x+1)^5} = \dfrac{A}{(x+1)^2} + \dfrac{B}{(x+1)^3} + \dfrac{C}{(x+1)^4} + \dfrac{D}{(x+1)^5}$$

then match the following.

I. $A =$ a) -3
II. $B =$ b) 2
III. $C =$ C) 3
IV. $D =$ d) 5

A. c, d, a, b

B. b, a, d, c

C. c, a, b, d

D. c, b, a, d

Answer: B

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Exercise 2 Set 4

1. A : If $\dfrac{5x + 1}{(x + 2)(x - 1)} = \dfrac{A}{X + 2} + \dfrac{B}{x - 1}$ then $A = 3, B = 2.$

R : $\dfrac{px + q}{(x - a)(x - b)} = \dfrac{pa + q}{(x - a)(a - b)} + \dfrac{pb + q}{(b - a)(x - b)}.$

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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2. a : If

$$\frac{1}{(x-2)(x^2+1)} = \frac{A}{x-2} + \frac{Bx+C}{x^2+1} \quad \text{then} \quad A = \frac{1}{5}, B = -\frac{1}{5}, C =$$

.

R : $\dfrac{1}{(x-a)(x^2+b)} = \dfrac{1}{a^2+b}\left[\dfrac{1}{x-a} - \dfrac{x+a}{x^2+b}\right]$

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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