MATHS

BOOKS - VIKRAM PUBLICATION (ANDHRA PUBLICATION)

PARTIAL FRACTIONS

Solved Problems

1. Resolve $\frac{5x+1}{(x+2)(x-1)}$ into Partial fractions.

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2. Resolve $\frac{2x+3}{5(x+2)(2x-1)}$ into Partial fractions.

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3. Resolve $\frac{13x+43}{2x^2+12x+30}$ into partial fractions.

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4. Resolve $\frac{x^2+5x+7}{(x-3)^3}$ into partial fractions.

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5. Resolve $\frac{x^2+13x+15}{(2x+3)(x+3)^2}$ into Partial fractions.

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6. Resolve $\frac{1}{(x-1)^2(x-2)}$ into Partial fractions.

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7. Resolve $\frac{3x-18}{x^3(x-3)}$ into Partial fractions.

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8. Resolve $\frac{x-1}{(x+1)(x-2)^2}$ into Partial fractions.

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9. Resolve $\frac{2x^2+1}{x^3-1}$ into Partial fractions.

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10. Resolve $\frac{x^3+x^2+1}{(x^2+2)(x^2+3)}$ into Partial fractions.

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11. Resolve $\frac{3x^3-2x^2-1}{x^4+x^2+1}$ into Partial fractions.

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12. Resolve $\frac{x^4 + 24x^2 + 28}{(x^2 + 1)^3}$ into Partial fractions.

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

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

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

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16. Find the coefficient of x^4 in the expansion of $\frac{3x}{(x-2)(x+1)}$ in powers of x specifying the interval in which the expansion is valid.

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17. Find the coefficient of x^n in the power series expansion of $\frac{x}{(x-1)^2(x-2)}$ specifying the region in which the expansion is valid.

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Exercise 7

1. Resolve the following into partial fractions.

$$\frac{2x+3}{(x+1)(x-3)}$$

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2. Resolve the following into partial fractions.

$$\frac{5x-6}{(2+x)(1-x)}$$

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3. Resolve the following into partial fractions.

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

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4. Resolve the following into partial fractions.

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

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5. Resolve the following into partial fractions.

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

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6. Resolve the following into partial fractions.

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

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7. Resolve the following into partial fractions.

$$\frac{x^2 - 2x + 6}{(x-2)^3}$$

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8. Resolve the following into partial fractions.

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

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9. Resolve the following into partial fractions.

$$\frac{9}{(x-1)(x+2)^2}$$

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10. Resolve the following into partial fractions.

$$\frac{1}{(1-2x)^2(1-3x)}$$

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11. Resolve the following into partial fractions.

$$\frac{1}{x^3(x+a)}$$

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12. Resolve the following into partial fractions.

$$\frac{x^2+5x+7}{(x-3)^3}$$

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13. Resolve the following into partial fractions.

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

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14. Resolve the following into partial fractions.

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

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15. Resolve the following into partial fractions.

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

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16. Resolve the following into partial fractions.

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

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17. Resolve the following into partial fractions.

$$\frac{x^2+1}{(x^2+x+1)^2}$$

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18. Resolve the following into partial fractions.

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

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19. Resolve the following into partial fractions.

$$\frac{x^2}{(x-1)(x-2)}$$

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20. Resolve the following into partial fractions.

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

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21. Resolve the following into partial fractions.

$$\frac{x^3}{(2x-1)(x-1)^2}$$

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22. Resolve the following into partial fractions.

$$\frac{x^3}{(x-a)(x-b)(x-c)}$$

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23. Find the coefficient of x^3 in the power series expansion of $\dfrac{5x+6}{(x+2)(1-x)}$ specifying the region in which the expansion is valid.

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24. Find is the coefficient of x^4 in the power series expansion of $\dfrac{3x^2+2x}{(x^2+2)(x-3)}$ specifying the interval in which the expansion is valid.

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25. Find the coefficient of x^n in the power series expansion of $\frac{x-4}{x^2-5x+6}$ specifying the region in which the expansion is valid.

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26. Find the coefficient of x^n in the power series expansion of $\frac{3x}{(x-1)(x-2)^2}$.

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

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28. Resolve the following into partial fractions.

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

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29. Resolve the $\frac{2x^2 + 3x + 4}{(x-1)(x^2+2)}$ into partial fractions.

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

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31. Resolve $\frac{x^2-3}{(x+2)(x^2+1)}$ into partial fractions.

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32. Resolve $\frac{1}{(X-1)^2(X-2)}$ into Partial fractions.

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