

Mathematics for Science

Assignment 7

Decomposing Rational Functions: CASE III and IV

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Instructions: Attempt all the Questions

1) Decompose into partial fractions;

a) $\frac{x^2+3x+9}{(x-1)(x^2+7)}$

c) $\frac{2x^3+2x+7}{(x^2+1)(2x^2+1)^2}$

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

d) $\frac{x^3+9}{x^2(x^2+x+3)}$

2) Decompose into partial fractions;

a) $\frac{x+2-3x^2}{(x^2+3x-11)^3}$

b) $\frac{7x^3+2x^2+x+1}{(x^2-5)(3x^2-1)}$

c) $\frac{x^2+3x+9}{x^2+3x+17}$

d) $\frac{1-3x-5x^3}{(x^2+1)(x^2-11)^2}$