

部分分式

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

2. $\frac{x+6}{(x+4)(x-3)}$

3. $\frac{2(x+8)}{(x+6)(x+7)}$

4. $\frac{7x+8}{(x-6)(x+4)}$

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

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

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

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

9. $\frac{6x^2-3x+14}{(4-x)(3x^2+1)}$

10. $\frac{x^2+5x+4}{(x+3)(x^2+3x+1)}$

11. $\frac{1-2x}{1+x^3}$

12. $\frac{x^3-2}{x^4-1}$

13. $\frac{x}{x^4-16}$

14. $\frac{x^2+7x-14}{(x+5)(x-3)}$

15. $\frac{2x^2+8x+7}{(x+2)(x+3)}$

16. $\frac{5x^2-x+4}{(2x-3)((x+4))}$

17. $\frac{x^4+1}{x^2+2x}$

18. Express following in partial fraction

a. $\frac{9-8x}{(2x-1)(3-x)}$

b. $\frac{12}{(2x-1)(3-x)}$

c. Hence, prove that $\frac{(9-8x)^2}{(2x-1)^2(3-x)^2} \equiv \frac{4}{(2x-1)^2} + \frac{9}{(3-x)^2} - \frac{24}{5(2x-1)} - \frac{12}{5(3-x)}$

19. Express following in partial fraction

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

部分分式

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

c. Hence, prove that $\frac{(4-x+3x^2)^2}{(1+x^2)^2(1-x)^2} \equiv \frac{1}{(1+x^2)^2} + \frac{9}{(1-x)^2} + \frac{3}{1-x} + \frac{3(x+1)}{1+x^2}$

统考题

1. $\frac{x-1}{x^2+3x+2} \equiv \frac{p}{x+1} + \frac{q}{x+2}$, 求 p 及 q

2. $\frac{x^2+1}{x^3-1} \equiv \frac{A}{x-1} + \frac{f(x)}{x^2+x+1}$, 求 f(x)

3. $\frac{2x^2-5x+6}{x(x-2)(x-3)} \equiv \frac{A}{x} + \frac{B}{x-2} + \frac{C}{x-3}$, 求 A, B, C

4. $\frac{x-5}{(x-2)^2(x+1)} = \frac{a}{x+1} + \frac{b}{x-2} + \frac{c}{(x-2)^2}$, 求 b

5. $\frac{3x^2+x+1}{(x-1)^3} \equiv \frac{A}{x-1} + \frac{B}{(x-1)^2} + \frac{C}{(x-1)^3}$, 求 A+B+C

6. $\frac{1}{x(x+2)(x+3)} = \frac{A}{x} + \frac{B}{x+2} + \frac{C}{x+3}$, 求 A+B+C

7. $\frac{x^3+1}{x(x-1)^3}$, 化为部分分式

8. $\frac{3x^3+2x+1}{x(x-1)(x-2)(x-3)-24}$, 化为部分分式

9. $\frac{x+4}{x^3+3x^2+2x}$, 化为部分分式

10. $f(x) = \frac{11-x^2}{(2+x)^2(1-3x)}$, 化为部分分式

11. $\frac{2x^3-4x^2-x-3}{x^2-2x-3}$, 化为部分分式

12. $\frac{3x+5}{(x^2+3x+4)(x-1)}$, 化为部分分式

13. $\frac{2x+1}{(x-1)^2(x^2+1)}$, 化为部分分式

14. $\frac{x^3+4}{(x^2+2x+3)^2}$, 化为部分分式