1. 9709/32/F/M/18 Q8

Let $f(x) = \dfrac{5x^2 + x + 27}{(2x+1)(x^2+9)}$.

  (i) Express $f(x)$ in partial fractions.   [5]

2. 9709/31/M/J/18 Q9

Let $f(x) = \dfrac{12x^2 + 4x - 1}{(x - 1)(3x + 2)}$.

   (i) Express $f(x)$ in partial fractions.   [5]

3. 9709/32/M/J/18 Q9

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

(i) Express $f(x)$ in the form $\dfrac{A}{3 - x} + \dfrac{Bx + C}{2 + x^2}$.　　　　　　　　　　　　　　　　　　[4]

4. 9709/33/M/J/18 Q6

(i) Express $\dfrac{1}{4-y^2}$ in partial fractions. [2]

5. 9709/31/O/N/18 Q9

Let $f(x) = \dfrac{6x^2 + 8x + 9}{(2 - x)(3 + 2x)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

6. 9709/32/O/N/18 Q8

Let $f(x) = \dfrac{7x^2 - 15x + 8}{(1 - 2x)(2 - x)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

7. 9709/33/O/N/18 Q9

Let $f(x) = \dfrac{6x^2 + 8x + 9}{(2 - x)(3 + 2x)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

8. 9709/32/F/M/19 Q8

Let $f(x) = \dfrac{12 + 12x - 4x^2}{(2 + x)(3 - 2x)}$.

(i) Express $f(x)$ in partial fractions. [5]

9. 9709/31/M/J/19 Q8

Let $f(x) = \dfrac{16 - 17x}{(2 + x)(3 - x)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

10. 9709/32/M/J/19 Q8

Let $f(x) = \dfrac{10x + 9}{(2x + 1)(2x + 3)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

11. 9709/33/M/J/19 Q9

Let $f(x) = \dfrac{2x(5-x)}{(3+x)(1-x)^2}$.

(i) Express $f(x)$ in partial fractions. [5]

12. 9709/31/O/N/19 Q8

Let $f(x) = \dfrac{x^2 + x + 6}{x^2(x+2)}$.

(i) Express $f(x)$ in partial fractions. [5]

13. 9709/32/O/N/19 Q8

Let $f(x) = \dfrac{2x^2 + x + 8}{(2x - 1)(x^2 + 2)}$.

(i) Express $f(x)$ in partial fractions. [5]

14. 9709/32/F/M/20 Q9

Let $f(x) = \dfrac{2 + 11x - 10x^2}{(1 + 2x)(1 - 2x)(2 + x)}$.

(a) Express $f(x)$ in partial fractions. [5]

15. 9709/33/M/J/20 Q7

Let $f(x) = \dfrac{2}{(2x-1)(2x+1)}$.

(a) Express $f(x)$ in partial fractions. [2]

(b) Using your answer to part (a), show that

$$\left(f(x)\right)^2 = \frac{1}{(2x-1)^2} - \frac{1}{2x-1} + \frac{1}{2x+1} + \frac{1}{(2x+1)^2}.$$ [2]

16. 9709/31/O/N/20 Q9

Let $f(x) = \dfrac{8 + 5x + 12x^2}{(1-x)(2+3x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

17. 9709/32/O/N/20 Q9

Let $f(x) = \dfrac{7x + 18}{(3x + 2)(x^2 + 4)}$.

(a) Express $f(x)$ in partial fractions. [5]

18. 9709/33/O/N/20 Q9

Let $f(x) = \dfrac{8 + 5x + 12x^2}{(1-x)(2+3x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

19. 9709/32/F/M/21 Q6

Let $f(x) = \dfrac{5a}{(2x-a)(3a-x)}$, where a is a positive constant.

(a) Express $f(x)$ in partial fractions. [3]

20. 9709/32/M/J/21 Q9

Let $f(x) = \dfrac{14 - 3x + 2x^2}{(2+x)(3+x^2)}$.

(a) Express $f(x)$ in partial fractions. [5]

21. 9709/33/M/J/21 Q4

Let $f(x) = \dfrac{15 - 6x}{(1 + 2x)(4 - x)}$.

(a) Express $f(x)$ in partial fractions. [3]

22. 9709/32/O/N/21 Q4

Express $\dfrac{4x^2 - 13x + 13}{(2x - 1)(x - 3)}$ in partial fractions. [5]

23. 9709/32/M/J/22 Q8

Let $f(x) = \dfrac{x^2 + 9x}{(3x - 1)(x^2 + 3)}$.

(a) Express $f(x)$ in partial fractions. [5]

24. 9709/33/M/J/22 Q7

Let $f(x) = \dfrac{5x^2 + 8x - 3}{(x-2)(2x^2 + 3)}$.

(a) Express $f(x)$ in partial fractions. [5]

25. 9709/31/O/N/22 Q10

Let $f(x) = \dfrac{2x^2 + 7x + 8}{(1+x)(2+x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

26. 9709/32/O/N/22 Q10

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

(a) Express $f(x)$ in partial fractions. [5]

27. 9709/33/O/N/22 Q11

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

(a) Express $f(x)$ in partial fractions. [5]

28. 9709/32/F/M/23 Q11

Let $f(x) = \dfrac{5x^2 + x + 11}{(4 + x^2)(1 + x)}$.

(a) Express $f(x)$ in partial fractions. [5]

29. 9709/31/M/J/23 Q8

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

(a) Express $f(x)$ in partial fractions. [5]

30. 9709/32/M/J/23 Q9

Let $f(x) = \dfrac{2x^2 + 17x - 17}{(1 + 2x)(2 - x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

31. 9709/33/M/J/23 Q10

Let $f(x) = \dfrac{21 - 8x - 2x^2}{(1 + 2x)(3 - x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

32. 9709/31/O/N/23 Q10

Let $f(x) = \dfrac{24x + 13}{(1 - 2x)(2 + x)^2}$.

(a) Express $f(x)$ in partial fractions. [5]

33. 9709/33/O/N/23 Q9

Let $f(x) = \dfrac{17x^2 - 7x + 16}{(2 + 3x^2)(2 - x)}$.

(a) Express $f(x)$ in partial fractions. [5]

34. 9709/32/F/M/24 Q10

Let $f(x) = \dfrac{36a^2}{(2a+x)(2a-x)(5a-2x)}$, where a is a positive constant.

(a) Express $f(x)$ in partial fractions. [5]

35. 9709/32/M/J/24 Q2

Express $\dfrac{6x^2 - 9x - 16}{2x^2 - 5x - 12}$ in partial fractions. [5]