

Partial Fraction Decomposition

Name: Key

Find the partial fraction decomposition for each...do not solve for the constants, just set them up!

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

Answer: $\frac{A}{x} + \frac{B}{x-1}$

2) $\frac{-4x+3}{x^2-9}$ $(x-3)(x+3)$

Answer: $\frac{A}{x-3} + \frac{B}{x+3}$

3) $\frac{-7x^2-4x-14}{(x^2+1)(x-2)}$

Answer: $\frac{Ax+B}{x^2+1} + \frac{C}{x-2}$

4) $\frac{-3x-29}{(x-7)(x+3)}$

Answer: $\frac{A}{x-7} + \frac{B}{x+3}$

5) $\frac{11x-7}{(2x+1)(x-2)}$

Answer: $\frac{A}{2x+1} + \frac{B}{x-2}$

6) $\frac{7x^2-16x+36}{x^4-16}$ $(x^2-4)(x^2+4)$
 $(x-2)(x+2)(x^2+4)$

Answer: $\frac{A}{x+2} + \frac{B}{x-2} + \frac{Cx+D}{x^2+4}$

7) $\frac{21-5x-3x^2}{(x+3)(x^2+4x+6)}$

Answer: $\frac{A}{x+3} + \frac{Bx+C}{x^2+4x+6}$

8) $\frac{x}{16x^4-1}$ $(4x^2-1)(4x^2+1)$
 $(2x-1)(2x+1)(4x^2+1)$

Answer: $\frac{A}{2x-1} + \frac{B}{2x+1} + \frac{Cx+D}{4x^2+1}$

9) $\frac{-x^2+13x-5}{(x+1)(x^2+5)}$

Answer: $\frac{A}{x+1} + \frac{Bx+C}{x^2+5}$

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

Answer: $\frac{A}{x+2} + \frac{B}{(x+2)^2} + \frac{C}{x-2} + \frac{D}{(x-2)^2}$