

Find the partial fraction decomposition

1. $\frac{1}{x^2-1}$

2. $\frac{5}{x^2+x}$

3. $\frac{4}{2x^2+x}$

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

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

6. $\frac{x^3}{x^2-9}$