

Warm-up problems for the Integration Bee! #4

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

2.  $\int \frac{2x^3 + 2x^2 + x + 1}{x^4 + x^3 + x^2} dx$

3.  $\int \frac{1}{x\sqrt{x-1}} dx$

## HINTS

1. complete the square and substitution
2. partial fractions
3.  $u = \sqrt{x-1}$  and trig sub