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Worksheet for Spring break - MAC 2312, Spring 2015

1. Use partial fractions to evaluate the integrals

$$(a) \int \frac{4x}{(x-1)^2(x+1)} dx$$

$$(b) \int \frac{2x^2 - x + 4}{x^3 + 4x} dx$$

2. The integral  $\int_0^2 \sqrt{1+x^3} dx$  cannot be evaluated exactly.

Write an expression (you do not have to evaluate) for each of the following approximations:  $L_4$ ,  $R_4$ ,  $T_4$ ,  $M_4$ .

3. Evaluate the integral by first completing the square and then doing a trigonometric substitution

$$\int \frac{x^2}{\sqrt{4x-x^2}} dx$$