MATH 5B - Single Variable Calculus II — Spring 2019

§7.4 Integration of Rational Functions by Partial Fractions

In-class Activity 7.4

Dr. Jorge Basilio

Pasadena City College

gbasilio@pasadena.edu

Activity 1:

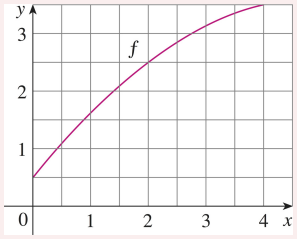
Approximate $\int_0^4 f(x)\,dx$ "by hand" using

(a) $L_2 = S_2(LEA)$

(b) $R_2 = S_2(REA)$

(c) $M_2 = S_2(MPA)$

(d) $T_2 = S_2(TrapA)$



Activity 2:

Using the same graph found in Activity 1, determine whether L_2, R_2, M_2, or T_2 are underestimates, overestimates, or not sure for the exact integral $\int_0^4 f(x)\,dx$.

Activity 3:

Use Sage to approximate $\int_{-2}^{2} \left(1 + x\sin(x^4)\right)\, dx$

(a) $L_{10} = S_{10}(LEA)$

(b) $R_{10} = S_{10}(REA)$

(c) $M_{10} = S_{10}(MPA)$

(d) $T_{10} = S_{10}(TrapA)$

(e) State the error for each of the above

Activity 4:

How large should n be to guarantee that the approximation of $\int_{-1}^{1} e^{-x^2}$ is accurate to within 0.001 using

(a) MPA?

(b) TrapA?

(c) SimpA?