

MA676
MWF 1-1:50pm
CB 345
Spring 2011

Instructor: Russell Brown
Office: POT741
Phone: 859 257 3951
russell.brown@uky.edu

EXERCISES

1. Stein and Shakarchi, pp. 145–147, #1,2,3,5,7 and 9.

PROBLEMS TO BE HANDED IN

Due Wednesday, 6 April 2011

1. (Compare exercise 14, page 92 of Stein and Shakarchi.) Let v_d be the Lebesgue measure of the ball with radius one in \mathbf{R}^d .

Show that

$$v_d = 2v_{d-1} \int_0^1 (1-t^2)^{(d-1)/2} dt.$$

Use the above recurrence relation and what we know about the Γ -function and the B -function to find a formula for v_d . Hint: Your answer will involve the Γ -function.

2. Stein and Shakarchi, page 146, #4

March 29, 2011