MATH 134 – Calculus with Fundamentals 2

Quiz 5 – March 23, 2018

Your Name: _____

Directions

There are 30 total points possible (distributed as indicated in the questions on both sides). You may use a calculator, but not a phone or any other electronic device.

(A) (10) Using the appropriate trigonometric substitution, convert the integral

$$\int \frac{\sqrt{x^2 + 25}}{x^2}\, dx$$

to an equivalent trigonometric integral and simplify the resulting trigonometric integral so that no square root appears. (*Don't* go beyond making the substitution to write the integral in terms of the new variable θ.)

(B) (10) Using the appropriate trigonometric reduction formula from the accompanying sheet, integrate $\int \sin^4 \theta \, d\theta$.

(C) (10) Suppose you have made the substitution $x = 7 \tan \theta$ and integrated a trigonometric integral to obtain the result
$$\theta + \ln|\sec(\theta) + \tan(\theta)| + C$$
what is the equivalent function of x?