Written HW22 – MATH 2502 Spring 2022

Due by 22 April for timely completion credit

Find the first three nonzero terms of the Taylor series of the given function $f(x)$, centered at the given point c.

1. $f(x) = \dfrac{1}{x}$, $c = 8$

2. $f(x) = 2^x$, $c = 1$ (*hint: recall that* $\dfrac{\mathrm{d}}{\mathrm{d}x}2^x = \ln(2)2^x$ *and* $\ln(2) \approx 0.693$ – *no "*$\ln(2)$*" should remain in any term*)

3. $f(x) = \cos(x)\sin(x)$, $c = \dfrac{\pi}{4}$ (*note: evaluate the derivatives using elementary trigonometry for perfect answers in terms of square roots/etc for full credit*)