MATH 104 TUTORIAL 8 ANSWERS

1.a. $\frac{\pi}{4}$

b. $\frac{\pi}{16}$

c. $\frac{1}{2}\ln\left|\frac{2x}{7}+\frac{\sqrt{4x^2-49}}{7}\right|+C$

d. $x-2\tan^{-1}\left(\frac{x}{2}\right)+C$

e. $\frac{1}{3}(x^2+4)^{3/2}-4\sqrt{x^2+4}+C=\frac{1}{3}(x^2-8)\sqrt{x^2+4}+C$

f. $\frac{-2\sqrt{4-w^2}}{w}+C$

2.a. $\frac{1}{2}[\ln|1+x|-\ln|1-x|]+C$

b. $\ln\left|\frac{(x-4)^9}{(x-3)^7}\right|+C$

c. $\frac{1}{16}\ln\left|\frac{(x-2)^5(x+2)}{x^6}\right|+C$

d. $\frac{1}{4}\ln 2+\frac{1}{2}\left(\frac{\pi}{4}\right)=\frac{(\pi+2\ln 2)}{8}$

e. $\tan^{-1}2x-\frac{1}{4x^2+1}+C$