

## Homework 17 Answer Key

1.  $-\frac{1}{3} \ln\left(\frac{2}{5}\right)$  OR  $\frac{1}{3} \ln\left(\frac{5}{2}\right)$

11.  $\frac{8x}{x^2+5} + \sec^2 x - \frac{3x^2}{2(x^3+2)}$

2.  $\frac{e^2}{2} + e - \frac{5}{2}$

12.  $\frac{8x}{7(x^2+1)} - \frac{72x^8}{5-x^9} + \sin x$

3.  $\frac{85}{2} + \ln\left(\frac{9}{4}\right)$

13. Concave Up when  $x > 0$

4.  $-\cos(\ln x) + C$

5.  $\frac{(\ln x)^3}{3} + C$

14.  $\frac{dy}{dx} = x^x \cdot (1 + \ln x)$

6.  $\ln|2 + \sin x| + C$

15.  $\frac{dy}{dx} = x^{\sin x} \cdot \left(\frac{\sin x}{x} + \ln x \cdot (\cos x)\right)$

7.  $\ln\left(\frac{8}{5}\right)$

16.  $\frac{dy}{dx} = (\cos x)^x \left(-x \tan x + \ln(\cos x)\right)$

8. 6

9.  $-\ln\left(\frac{3}{4}\right)$  OR  $\ln\left(\frac{4}{3}\right)$

10.  $\frac{1}{2}$