

Math 152 – Sample Exam 3 Brief Answers – Spring 2016 – Louis Gross

1. At noon $\int_0^4 \rho_N(x) dx = 2376$ zooplankton

At midnight $\int_0^4 \rho_M(x) dx = 1729$ zooplankton

2. (a) $\int f(z) dz = \frac{1}{6}z^6 - \frac{1}{2}z^4 - z + c$ (b) $\int h(y) dy = \frac{1}{2}e^{2y} + 3y^{1/3} + c$

(c) $\int y(x) dx = -\frac{2}{3}\cos(3x) - \sin(x) + c$

3. $\int_0^2 \frac{x}{1+x^2} = \frac{\ln(5)}{2} = .805$

4. $100 + 10 \int_0^{10} t^2 e^{-1/5} dt = 100 + 808 = 908$ cases

5. $\int_0^1 \pi(x^2 + x)^2 dx = \frac{31}{30}\pi = 3.25$ cubic units

6. (a) $2\ln(2) - \frac{3}{4} = .636$ (b) $\sqrt{6} - 2 = .45$ (c) $\frac{\pi}{4}$

7. $\frac{1}{12} \int_0^{12} T(t) dt = 14$ °C