

Answers

Autumn 2011 Math 125 Final Exam

1. (a) $\frac{1}{5} \sin^{-1}(x^5 - 1) + C$
(b) $\frac{1}{5} \ln |x| - \frac{1}{10} \ln |(x - 2)^2 + 1| + \frac{2}{5} \tan^{-1}(x - 2) + C$
2. (a) $\frac{19}{6}$
(b) $\frac{1}{2} + e^{-\pi} + \frac{1}{2} e^{-2\pi}$
3. $f(x) = 4x, \quad a = 2$
4. (a) $\int_0^2 x^2 dx + \int_2^{10} \left(-\frac{1}{2}x + 5\right) dx = \frac{56}{3}$
(b) $\int_0^4 ((-2y + 10) - \sqrt{y}) dy = \frac{56}{3}$
5. $8\pi^2$
6. 5572.8 ft-lb
7. (a) $\int_0^{\pi/2} \sqrt{1 + \cos^2 x} dx$
(b) 1.910
8. $-4e^{t^2/2-3t} - 1$
9. (a) 63.21 m³
(b) 0.0184 liters
10. (a) -9
(b) 3
(c) 2
(d) $\frac{9}{2}$