Errata for MA242 Textbook Fall 2016

#1. Chapter 1 Section 1 Answers to Selected Exercises

Page 18. Exercise 13. The center is (2,-3,5) and the radius is 5.

#2. Chapter 1 Section 1 Answers to Selected Exercises

Page 18. Exercise 19. The correct answer is (0,4,-2).

#3. Chapter 1 Section 2

Page 31. In Figure 23 the angle that is labeled 82° should be 81°.

#4. Chapter 1 Section 2 Answers to Selected Exercises

Page 39. Exercise 13. The correct answers are
(a) $10\sqrt{62}$
(b) $5\sqrt{5}$
(c) $\sqrt{186}$
(d) $\sqrt{395}$
(e) $\sqrt{10626}$

#5. Chapter 1 Section 3 Example 15

Page 50. The second line and following of the solution solution should be:

$$\vec{u}_{\parallel} = \frac{(\vec{u}\cdot\vec{v})}{\|\vec{v}\|^2} = \left\langle \frac{4}{3}, -\frac{8}{3}, \frac{8}{3} \right\rangle$$

$$\vec{u}_{\perp} = \vec{u} - \vec{u}_{\perp} = \left\langle \frac{8}{3}, \frac{5}{3}, \frac{1}{3} \right\rangle$$

Thus the orthogonal decomposition of $\vec{u}$ with respect to $\vec{v}$ is

$$\vec{u} = \vec{u}_{\parallel} + \vec{u}_{\perp} = \left\langle \frac{4}{3}, -\frac{8}{3}, \frac{8}{3} \right\rangle + \left\langle \frac{8}{3}, \frac{5}{3}, \frac{1}{3} \right\rangle$$

#5. Chapter 1 Section 4 Exercise 19

Page 69. Exercise 19 should be rewritten as follows:

A torque wrench grips a bolt at the origin of coordinates, with the free end of the torque wrench located at the point $(r_0, 0, 0)$. The force on this end of the torque wrench points in the direction of $\vec{V} = \langle 10, 0, 16 \rangle$. Note that $\vec{r} = \langle r_0, 0, 0 \rangle$ in this problem. Compute the length of the lever arm $\|L\|$ needed to produce a torque with magnitude 200 ft-lb if the magnitude of the force is 100 pounds.

#6. Chapter 2 Section 2 Exercise 25

Page 38. Exercise 25 The correct answer is

$\vec{r}(t) = \langle 1000t, 1200t, -16^2 + 320t \rangle$. It spends $\sqrt{20}$ seconds in the air and lands $4000\sqrt{305} \approx 6985.7$ feet down range.

#7. Chapter 2 Section 3 Exercise 10

Page 68. Exercise 10 A more reasonable problem is to use

$$\vec{r}(t) = \langle 4\cos t, 4\sin t, 4\ln\cos t \rangle$$

#8. Chapter 3 Section 3 Exercise 14

Page 48. Exercise 14 the function is

$$f(x, y, z) = \tan(1 + 2x^2y^4z^2)$$

#9. Chapter 3 Section 3 Exercise 17

Page 51. A nicer looking answer is

$$4x + 2\sqrt{2}y - 5z = -1$$

#10. Chapter 3 Section 5 Exercise 17

Page 86. The function in Exercise 17 is a function of three variables so

$$f(x, y, z) = yz + xz + xy$$

#11. Chapter 3 Section 6 Exercise 13

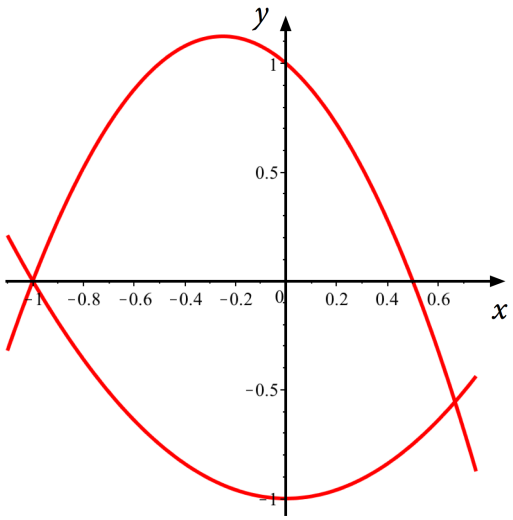
Page 25. Exercise 13 The global maximum is 19 and the global minimum is -12.

#12. Chapter 4 Section 2 Exercise 14

Page 50. Exercise 14: Drop this problem.

#13. Chapter 4 Section 2 Exercise 3

Page 52. Exercise 3 The answer is $2\frac{17}{54}$ and the graph is given below.



#14. Chapter 4 Section 2 Exercise 9

Page 52. Exercise 9

$$\frac{-4e^3 + 9\ln 3 - 4}{2e - 4 - 2e^3 + 6\ln 3}$$

#15. Chapter 4 Section 2 Exercise 11

Page 52. Exercise 11

$$\frac{(-\pi - 4)e^{-\pi/2} + (\pi - 4)(e^{\pi/2} - 2)}{\pi(\pi - 4)}$$