Answers to Math 261 SP15 Exam 1

The following are just the final numerical (or otherwise) answers for Math 261 SP15 Exam 1. Your solutions on the exam should include full details to allow for partial credit. If you are having trouble coming up with these answers, please go to a review session or office hours.

1. (a) $\frac{7}{3}$
   (b) $1$

2. (a) $\langle -\frac{1}{9}, \frac{2}{9}, -\frac{2}{9} \rangle$
   (b) $\langle 8, 6, 2 \rangle$
   (c) $\sqrt{26}$

3. (a) $\langle 1, -6, -3 \rangle$ (previously posted as $\langle -14, -1, -6 \rangle$, which is part of the next part!)
   (b) $-14x - y - 6z = 10$

4. (a) $\langle -3 \sin t, 4, 3 \cos t \rangle$, $5$, $\langle -3 \cos t, 0, -3 \sin t \rangle$
   (b) $\int_{0}^{\pi} |v(t)| dt = 5\pi$
   (c) $\langle -\frac{3}{5} \sin t, \frac{4}{5}, \frac{3}{5} \cos t \rangle$, $\langle -\frac{3}{5}, \frac{4}{5}, 0 \rangle$
   (d) $\langle -\cos t, 0, -\sin t \rangle$, $\langle 0, 0, -1 \rangle$ (previously posted as $0$, $3$, which are $a_T$ and $a_N$).

5. (a) $\langle e^2t + 1, 2t, \frac{1}{t+1} - 6 \rangle$
   (b) $\langle \frac{1}{2} e^2t^2 + t + 3, t^2 - 3, \ln(t + 1) - 6t \rangle$

6. (a) Does not exist. (You have to show why!)
   (b) $0$