Exam I Hints and Answers
Math 126 A & B Spring 2012

1. (a) (4 points) $\vec{w} = \frac{20}{\sqrt{29}}\langle 3, 4, 2\rangle$ or $\vec{w} = -\frac{20}{\sqrt{29}}\langle 3, 4, 2\rangle$

   (b) (4 points) $\theta = \cos^{-1}\left(\frac{1}{\sqrt{175}}\right)$

   (c) (1 point) $(-3, -\frac{\pi}{3})$

   (d) i. (1 point) circle
   ii. (1 point) hyperbola
   iii. (1 point) cone

2. $x + 4y + z = 87$

3. (a) (3 points) $t = 0, 2$

   (b) (2 points) $t = -1$

   (c) (5 points) $x = \frac{2e^2 - 1 + \frac{1}{e^2}}{2e}$

4. (4 points each)

   (a) $x(t) = \frac{t^3}{20}$ and $y(t) = \frac{t^2}{4}$

   (b) $x = 50 + 15t, y = 25 + 5t, z = 10 + t$

   (c) $\kappa(10) = \frac{\sqrt{262/4}}{(251)^{3/2}} \approx 0.002035214$

5. Top row: (b) (d); Bottom row: (a) (c)