Quiz 3

Show all your work. This is a Group Quiz. You should talk to your neighbor and you may use your class notes and text.

1. Find the point of intersection (if there is one) between the line given by $x = t$, $y = 3t - 2$, $z = -t$ and the plane given by $x + y + z = 1$.

2. Consider the vector $\mathbf{c} = \mathbf{a} \times (\mathbf{a} \times \mathbf{b})$. Is $\mathbf{c} \perp \mathbf{a}$? Is $\mathbf{c} \perp \mathbf{b}$? Explain.

3. Let $\mathbf{a}$ and $\mathbf{b}$ be unit vectors. What is the minimum and maximum magnitude of the cross product, $\mathbf{a} \times \mathbf{b}$?

4. Find the distance between the planes $x + 2y + 1 = z$ and $3x + 6y - 3z = 4$.

The Matching Game

Match each function with its graph. Give reasons for your choices.
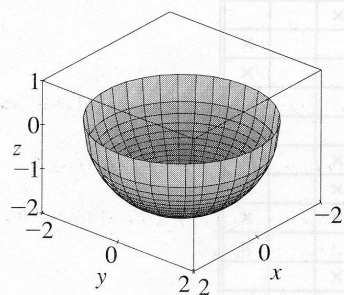
1. $x^2 + y^2 + \frac{1}{4}z^2 = 1$ **2.** $z = -\sqrt{4 - x^2 - y^2}$ **3.** $y^2 + \frac{1}{4}z^2 = 1$
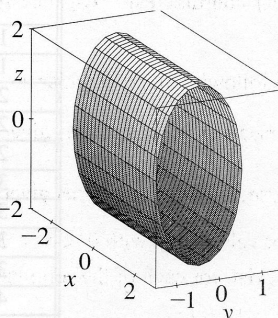
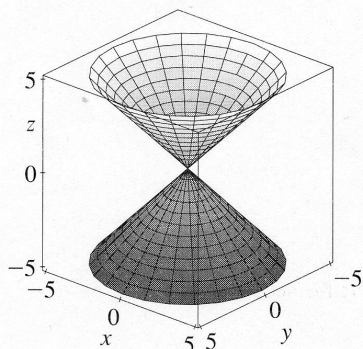**4.** $\frac{1}{9}z^2 - \frac{1}{4}y^2 = 1$ **5.** $\frac{1}{4}x^2 - y^2 - z^2 = 1$ **6.** $|z| = \sqrt{x^2 + y^2}$
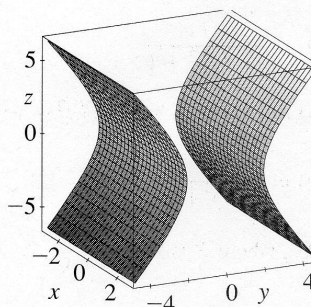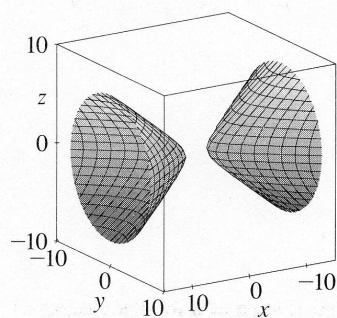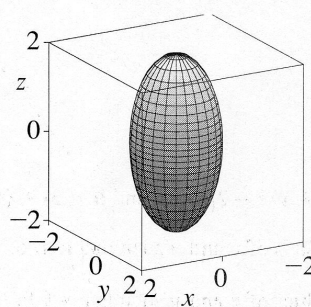

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II

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