NAME _____ **July 18, 2005**

Math 208 Summer II 2005 Quiz 2 **Score** ___ /20

1. (*4*) Sketch the curve traced out by $\langle 2t+1, t+1, 2t\rangle$, including orientation.

2. (*4*) Find $\frac{d}{dt}\langle 2t, \frac{1}{t}, e^t\rangle$.

3. (*4*) Evaluate the integral $\int_1^3 \langle 2t, \frac{1}{t}, e^t\rangle dt$.

4. (*4*) Find the unit tangent vector for the curve traced out by $\mathbf{r}(t) = (3\sin t)\mathbf{i} + (4\cos t)\mathbf{j}$ when $t = \pi/4$.

5. (*4*) A baseball is thrown from $\mathbf{r}(0) = 5\mathbf{j}$ at an initial velocity $\mathbf{v}(0) = 96\mathbf{i}$ (we are considering only two dimensions, with units in feet and seconds). The gravitational acceleration is $\mathbf{a} = -32\mathbf{j}$. Find $\mathbf{r}(t)$.