

Math 2210 - Exam 1

University of Utah

Fall 2008

Name: _____

1. For the vectors:

$$\mathbf{a} = 3\mathbf{i} + 4\mathbf{j} - 2\mathbf{k}$$

and

$$\mathbf{b} = 2\mathbf{i} + \mathbf{j} + 3\mathbf{k}$$

calculate: (10 points)

(a) $\mathbf{a} + \mathbf{b}$ (3 points)

(b) $\mathbf{a} \cdot \mathbf{b}$ (3 points)

(c) $\mathbf{a} \times \mathbf{b}$ (4 points)

2. For the curve given by the vector equation:

$$\mathbf{r}(t) = t\mathbf{i} + \sin t\mathbf{j} + \cos t\mathbf{k}$$

calculate: (20 points)

(a) The velocity $\mathbf{v}(t) = \mathbf{r}'(t)$ (3 points)

(b) The acceleration $\mathbf{a}(t) = \mathbf{r}''(t)$ (2 points)