

Name: _____

ID: _____

1. Let $\mathbf{a} = \frac{1}{2}\mathbf{i} + \frac{1}{3}\mathbf{j} + \frac{1}{4}\mathbf{k}$ and $\mathbf{b} = \mathbf{i} + 2\mathbf{j} + 3\mathbf{k}$.

(a) Compute $\mathbf{a} \times \mathbf{b}$.

(b) Verify that your answer is orthogonal to both \mathbf{a} and \mathbf{b} .

2. Consider the line that passes through the point $(5, 1, 3)$ and is parallel to the vector $\mathbf{i} + 4\mathbf{j} - 2\mathbf{k}$.
- (a) Write down a vector equation for the line.

(b) Write down parametric equations for the line.

(c) Find two other points on the line.