> Please show **all** your work! Answers without supporting work will not be given credit.
> **Clearly mention what theorem(s), if any, you are using.**
> Write answers in spaces provided.
> You have 15 minutes to complete this Quiz.
> You can get MAXIMUM $(3 + 5 + 7 =)15$ marks.

Name:

1. Let $\vec{a}$ and $\vec{b}$ be two vectors of length 2 and 3 units respectively and suppose the angle between them is $\frac{2\pi}{3}$. Find $\vec{a} \cdot \vec{b}$.

2. Suppose $\vec{c} = 3\vec{a} + 2\vec{b}$. What is the angle between $\vec{a}$ and $\vec{c}$?

3. Find the unit vector in the direction of $\vec{c}$, in terms of $\vec{a}$ and $\vec{b}$.