Phys. 101 – Spring (032)
Sec # 4
**Quiz # 2 (Ch. 3)**
Name: Key ID #

**1- Two vectors L and M, are defined by L =(4 i – 8 j) m and M = (8 i + 2 j) m. Find the magnitude and direction of vector C = (2L – M).**

**C** = 2 (4 **i** – 8 **j**) - (8 **i** + 2 **j**)
**C** = -18 **j**
Magnitude of C = 18 m, along the –ve y- axis
$\Rightarrow \theta$ = (270º) counter-clock-wise from the +ve x-axis.

**2- Find the angle between the two vectors L and M.**

Applying scalar product:

$$L \cdot M = |L||M|\cos q$$

$|L| = \sqrt{4^2+8^2} = 8.9$
$|M| = \sqrt{8^2+2^2} = 8.2$
L · M = 32 – 16 = 16
$\Rightarrow \cos\theta = 0.217$
$\theta$ = 77.5º

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