

PHYS 301

HOMEWORK #7

Due : π Day (March 14)

1. Consider two vectors P and Q. Both originate at the origin; P has magnitude P and lies in the first quadrant, making an angle θ with the positive x axis. Q has magnitude Q and lies in the fourth quadrant and is ϕ below the positive x axis

Use the properties of vector components and the cross product to verify the sin addition formula :

$$\sin(\theta + \phi) = \sin \theta \cos \phi + \sin \phi \cos \theta$$

2. Complete all parts of the motivating exercise on p. 379 of the text. Show complete solutions (you can check some of your answers in Appendix L).

3. Complete all parts of the motivating exercise on p. 380 of the text. Show complete solutions (and check some of the answers in Appendix L).