

Math 14
Winter 2009
Friday, January 23

Problems

(1.) Find the average y -coordinate of a point on the top half of the unit circle.

(2.) An object of mass M located at the origin produces a gravitational field at point (x, y) whose magnitude is $\frac{MG}{r^2}$ (where G is a constant and r is the distance to the origin) and whose direction is toward the origin.

(a.) Express the field at the point (x, y) as a (vector) function $F(x, y)$.

Continued on reverse.

(b.) Find the average x - and y -components of F on the line segment from $(1, 0)$ to $(1, \frac{\pi}{2})$.