

MTH 132.12 Quiz 5
Friday 25 February 2011

Name:

Show *all* your work. Points will be deducted for incomplete work. No calculators are allowed.

1. Consider the circles $C_1 = \{(x, y) | x^2 + y^2 = 1\}$ and $C_2 = \{(x, y) | (x - \sqrt{2})^2 + y^2 = 1\}$.

(a) What are the slopes of C_1 and C_2 , respectively, at $(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$?

(b) What can you say about the way the two circles intersect?

2. Suppose a particle is moving, with velocity given by $v(t) = -\frac{2}{t+3}$ for $t \geq 0$. Velocity is measured in furlongs per day (fur/day) and time is measured in days.

(a) What is the acceleration $a(t)$?

(b) What are the units of $a(t)$?

(c) True or false: the particle is acted on by a constant force (i.e. the force acting on the particle does not change over time).

(d) When does the particle change direction?