

AB: Q201. EXAM REVIEW

Section 3.7:

1. Consider the curve C: $y^2 = x^2 - x - 8$.

A. Find dy/dx

B. Find the points on the curve C when $y = 2$.

C. Find the equations of the respective tangent lines to the curve C at the points found in part B.

D. Show that there are no horizontal tangents to the curve C.

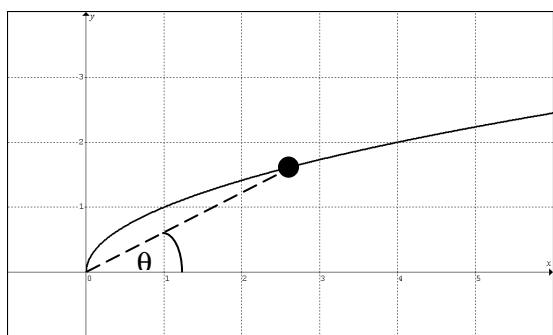
E. Find d^2y/dx^2 (Do not simplify)

F. Find d^2y/dx^2 at the point $(-3, -2)$ (Do simplify)

2. Find dy/dx if $x^3 - xy^3 = 18xy$.

Section 4.6:

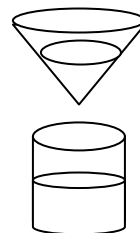
3. A particle moves from left to right along the curve $y = \sqrt{x}$ in such a way that the x -coordinate increases at the rate of 8 m/s. How fast is the angle of inclination θ of the line joining the particle to the origin changing when $x = 4$?



4. Coffee is draining from a conical filter (6 inch base and 6 inch height) into a cylindrical coffeepot (6 inch base) at the rate $10 \text{ in}^3/\text{min}$.

A. How fast is the level (height) in the cone falling at the moment when $h = 5$.

B. How fast is the level (height) in the pot rising at the same moment?



5. Notes Packet – AP Question

6. Find dy/dx if $2\cos(xy^2) + y = x^2y$

7. A particle $P(x,y)$ is moving in the coordinate plane in such a way that $dx/dt = -1$ m/sec and $dy/dt = 5$ m/sec. How fast is the particle's distance from the origin changing as it passes through the point $(5, 12)$?