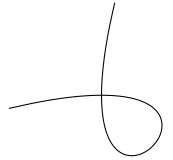


Instructions Please write your name in the upper right-hand corner of the page. Write complete sentences to explain your solutions.

1. A curve in the xy -plane is given in parametric form by $x(t) = t^3 - 3t^2$ and $y(t) = t^3 - 3t$, where the parameter t runs through the real numbers. Find the points on the curve where the tangent line is vertical (that is, parallel to the y -axis).
[This is exercise 12 on page 214 of the textbook.]



2. Find the linear approximation of the function $\frac{1}{2+x}$ at the point $a = 0$.



3. A kite 100 feet above the ground moves horizontally at a speed of 8 feet/second. At what rate is the angle between the string and the horizontal decreasing when 200 feet of string have been let out?
[This is exercise 22 on page 220 of the textbook.]

