## Calculus

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 $x y$-plane is given in parametric form by $x(t)=t^{3}-3 t^{2}$ and $y(t)=t^{3}-3 t$, 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 $a=0$.

## Quiz 7 <br> Calculus

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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.]


