Calculator Active

Consider the curve given by $2x^{2}-xy-y^{2}+18=0$.

1. Show that $\frac{dy}{dx}=\frac{4x-y}{x+2y}$ .
2. Find the x coordinates of all points on the curve where the tangent line is horizontal.
3. Show that there is no point on the curve where the slope of the tangent line is undefined.

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| a) |
| b) |
| c) |

Non-Calculator

A particle starts at time t = 0 and moves along the x-axis so that its position at any time $t\geq 0$ is given by $x\left(t\right)=\left(t-1\right)^{3}\left(2t-3\right)$.

1. Find the velocity of the particle at any time $t\geq 0$.
2. For what values of t is the velocity of the particle less than zero?
3. Find the value of t when the particle is moving and the acceleration is zero.

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| a) |
| b) |
| c) |