

In the space provided, please write your solution to the following exercises. Show all of your work and not just the final conclusion. Remember to use good notation. The majority of the credit you receive will be based on the completeness and clarity of your responses.

1. A particle moving along a line has position $s(t) = t^4 - 18t^2$ meters at time t seconds.

(2 points) (a) At which times does the particle pass through the origin?

(4 points) (b) At which times is the particle instantaneously motionless (zero velocity)?

(4 points) 2. Calculate y' and y'' for the following equation.

$$y = x^5 e^x$$