

2. For time $t \geq 0$, a particle moves in the xy -plane with position $(x(t), y(t))$ and velocity vector

$\left\langle (t - 1)e^{t^2}, \sin\left(t^{1.25}\right) \right\rangle$. At time $t = 0$, the position of the particle is $(-2, 5)$.

- (a) Find the speed of the particle at time $t = 1.2$. Find the acceleration vector of the particle at time $t = 1.2$.
- (b) Find the total distance traveled by the particle over the time interval $0 \leq t \leq 1.2$.
- (c) Find the coordinates of the point at which the particle is farthest to the left for $t \geq 0$. Explain why there is no point at which the particle is farthest to the right for $t \geq 0$.

Write your responses to this question only on the designated pages in the separate Free Response booklet. Write your solution to each part in the space provided for that part.

END OF PART A

CALCULUS BC
SECTION II, Part B
Time—1 hour
4 Questions

NO CALCULATOR IS ALLOWED FOR THESE QUESTIONS.