An object moves along a number line so that its position, in cm, at time $t$ is given by $s(t) = \frac{1}{3}t^3 - \frac{1}{4}t^2 - 3t$ for all $t$, $t$ in seconds.

1. Determine how far and in what direction the object traveled over the time interval $6 \leq t \leq 12$ seconds. Show evidence to justify your responses.

2. Jilian claimed that at time $t = 3$ seconds, the object was moving to the right, considered a positive direction. Is Jilian correct? Explain how you know, showing verifiable calculus evidence. Use appropriate mathematics notation as part of your answer.

Review your responses. Have you included and used units appropriately?