Answers to Particle Movement Problem

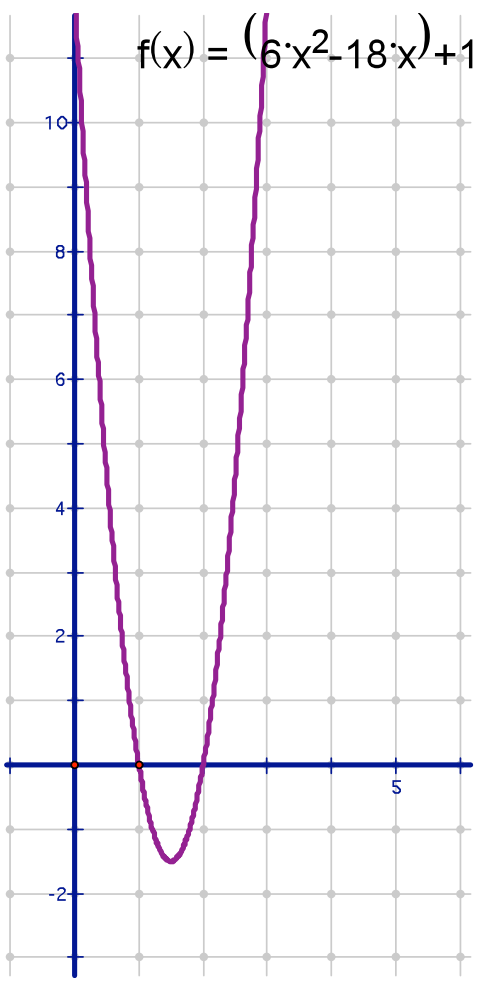
Position function $s(t) = \int v(t)dt = 2t^3 - 9t^2 + 12t + 8$

Displacement

1. $s(5) - s(0) = 93 - 8 = 85$

2. $\int_0^5 (6t^2 - 18t + 12)dt = 85$

Total Distance Traveled



1. $s(0) = 8$

   $s(1) = 13$ — 5

   $s(2) = 12$ — 1

   $s(5) = 93$ — 81

   Total distance = 87

2. $\int_0^5 \left|6t^2 - 18t + 12\right| dt = 87$