

Friday, January 16

Clicker Questions

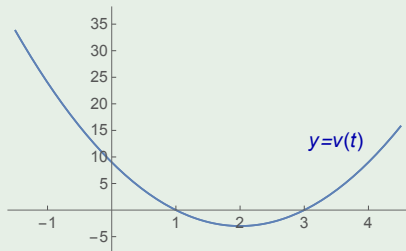
Clicker Question 1

Velocity and position

A particle travels along the x -axis. Its velocity at time t is given by

$$v(t) = 3t^2 - 12t + 9.$$

Which of the following describes the particle?



- A. moves to the left for $t \leq 2$
- B. moves to the left for $t \leq 0$
- C. moves to the left for $1 \leq t \leq 3$
- D. always moves to the right
- E. moves down for $t \leq 2$

Clicker Question 2

Definite integrals and units

Suppose the variable t represents time in hours, and the function $P(t)$ represents the power level of a generating station, measured in megawatts.

What are the **units of** $\int_0^{24} P(t) dt$?

- A. **megawatt-hours** — same units as $\sum_{i=1}^n P(x_i^*) \Delta t$
- B. megawatts per hour
- C. megawatts
- D. joules
- E. none of the above

Side note: power is the rate of change of energy, so

$$\int_0^{24} P(t) dt = \int_0^{24} E'(t) dt = E(24) - E(0).$$