

Day 2 Answers

Particle Motion #1

- a. Increasing because $v(5.5)$ & $a(5.5)$ have the same sign.
- b. 1.949
- c. 12.573
- d. $x(5.195 \text{ or } 5.196) = 14.134 \text{ or } 14.135$

Particle Motion #2

- a. Slowing down because $v(4)$ & $v'(4)$ have different signs.
- b. $v(t)$ changes from positive to negative at $t = 2.707$.
Therefore, the particle changes directions at this time.
- c. -3.815
- d. 5.301

Particle Motion #3

- a. 3.128 or 3.127 and $t = 3.473$
- b. -9.207
- c. The particle changes direction at $t = .536$ and $t = 3.318$ or 3.317
- d. Increasing because $v(4)$ & $v'(4)$ have the same signs.

Particle Motion #4

- a. (3,9)
- b. $\int_0^6 |v(t)| dt$
- c. Increasing because $v(4)$ & $v'(4)$ have the same signs.
- d. $-2 + \frac{3\sqrt{3}}{\pi}$

Particle Motion #5

- a. (0,1)
- b. (1,3) & (5,8]
- c. Decreasing because $v_Q(2)$ & $a_Q(2)$ have different signs.
- d. 23

Multiple Choice

- | | |
|-------|-------|
| 11. A | 16. A |
| 12. D | 17. B |
| 13. C | 18. C |
| 14. A | 19. E |
| 15. B | 20. A |