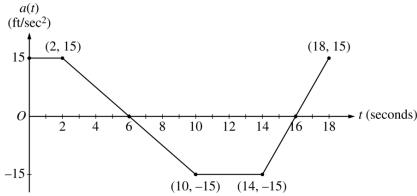
AP Calculus – Spot Check 4 – Area and Integration



A car is traveling on a straight road with velocity 55 ft/sec at time t=0. For $0 \le t \le 18$ seconds, the car's acceleration a(t), in $\mathrm{ft/sec}^2$, is the piecewise linear function defined by the graph above.

(a) Is the velocity of the car increasing at t = 2 seconds? Why or why not?

(b) At what time in the interval $0 \le t \le 18$ other than t = 0, is the velocity 55 ft/sec? Why?

(c) On the time interval $0 \le t \le 18$, what is the car's absolute maximum velocity, in ft/sec, and at what time does it occur? Justify your answer.

(d) At what times in the interval $0 \le t \le 18$, if any, is the car's velocity equal to zero? Justify your answer.