Name: **Period:** **Date:** **Score:** **/**

End of Lesson Assessment: Calculator

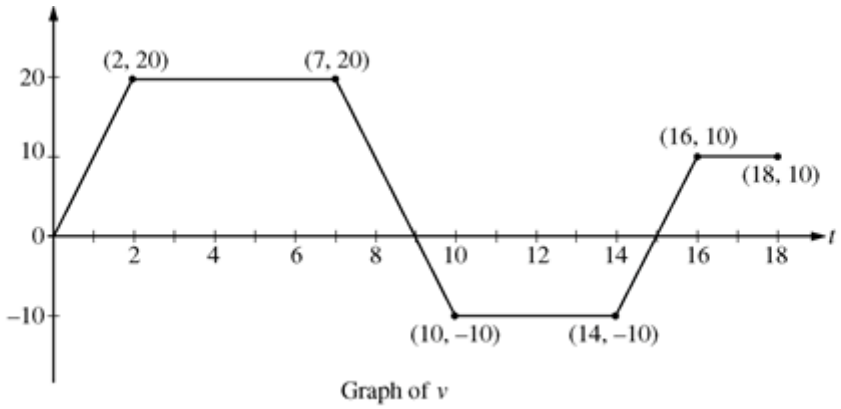
1. A particle moves along a straight line. For $0 \leq t \leq 5$, the velocity of the particle is given by $v(t) = -2 + (t^2 + 3t)^{6/5} - t^3$, and the position of the particle is given by $s(t)$. It is known that $s(0) = 10$. Write an expression $s(t)$ involving an integral that gives the position of the particle. Use this expression to find the position of the particle at time $t = 5$. [1]

[1] 2013 AP Calculus AB Free Response Question 2 (Calculator active)

Name: **Period:** **Date:** **Score:** /

End of Lesson Assessment: No Calculator

2. A squirrel starts at building A at time $t = 0$ and travels along a straight, horizontal wire connected to building B. For $0 \leq t \leq 18$, the squirrel's velocity is modeled by the piecewise-linear function defined by the graph below. Write an expression involving an integral that gives the position of the squirrel $s(t)$. Use this expression and the graph to find the position of the squirrel at time $t = 18$. [2]



Graph of v

[2] Adapted from 2010 AP Calculus AB Free-Response Form B Question 4

3. Ben rides a unicycle back and forth along a straight east-west track. The twice-differentiable function B models Ben's position on the track, measured in meters from the western end of the track, at time t, measured in seconds from the start of the ride. The table below gives values for $B(t)$ and Ben's velocity, $v(t)$, measured in meters per seconds, at selected times t. Write an expression involving an integral that gives Ben's position, $B(t)$ at time $t = 60$. Use a left Riemann sum with the subintervals indicated by the table to approximate Ben's position at time $t = 60$. [3]

t (seconds)	0	10	40	60
$v(t)$ (meters per seconds)	2.0	2.3	2.5	4.6

[3] Adapted from 2011 AP Calculus AB Free-Response Form B Question 5