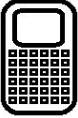

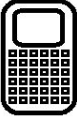
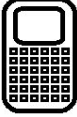
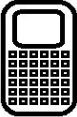
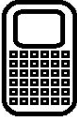


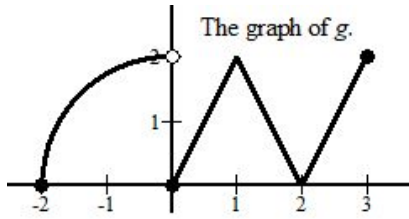
Directions: Beginning in the first cell marked #1, use your knowledge of the fundamental theorem of calculus to find your answer. To advance in the circuit, hunt for your answer and mark that cell #2. Continue working in this manner until you complete the circuit. Even on problems indicated calculator active, show the set up used.

<p>Ans: 101</p> <p>#1 Given $f(2) = 5$ and $f'(x) = x + \sin x$.</p> <p>Find $f(4)$.</p> 	<p>Ans: 2</p> <p>_____ Given $f(2) = 5$ and $f'(x) = x + \sin x$.</p> <p>Find $f(0)$.</p> 
<p>Ans: 11.237</p> <p>_____ A particle moves along a straight line and its velocity is modeled by $v(t) = 30t - 5t^3$. The particle's position is modeled by $s(t)$ and $s(0) = 4$.</p> <p>Find the particle's position at time $t = 3$.</p> 	<p>Ans: $-1 - \pi$</p> <p>_____ A printer is publishing multiple copies of a specific document. While printing this document, ink is being used at a rate of $r(t) = 0.2(1 + \cos(\pi x))$, measured in ounces/min. If the printer started the job with 5 ounces of ink in its cartridge, how many ounces of ink will remain in the cartridge after 3 minutes of printing?</p> 
<p>Ans: 26</p> <p>_____ A mail clerk is making deliveries along a long straight hallway. The clerk's velocity is modeled in meters/min by $v(t) = 4\pi \sin(\frac{\pi t}{5})$. If the clerk starts at one end and takes $13\frac{2}{3}$ minutes to finish deliveries, how many meters is the clerk from the starting point when finished?</p> 	<p>Ans: 113.383</p> <p>_____ A particle moves along a straight line with acceleration modeled by $a(t) = 2t$. The velocity and position of the particle are modeled by $v(t)$ and $x(t)$ respectively. Given $v(0) = 4$ and $x(0) = 5$, find $x(6)$.</p> 

Circuit-Accumulation Models

Ans: 37.750

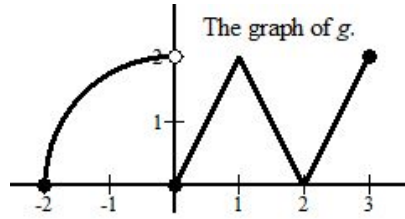
_____ The graph of g is shown. $f(x) = \int_1^x g(t)dt$.
 g consists of a quarter circle and three line segments.



Find $f(3)$.

Ans: 33.383

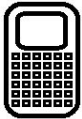
_____ The graph of g is shown. $f(x) = \int_1^x g(t)dt$.
 g consists of a quarter circle and three line segments.



Find $f(-2)$.

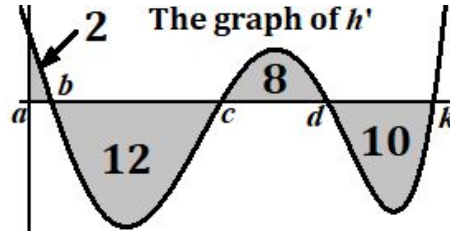
Ans: 12

_____ A mail clerk is making deliveries along a long straight hallway. The clerk's velocity is modeled in meters/min by $v(t) = 4\pi \sin(\frac{\pi t}{5})$. If the clerk starts at one end and takes $13\frac{2}{3}$ minutes to finish deliveries, how many meters did the clerk walk during the $13\frac{2}{3}$ minutes?



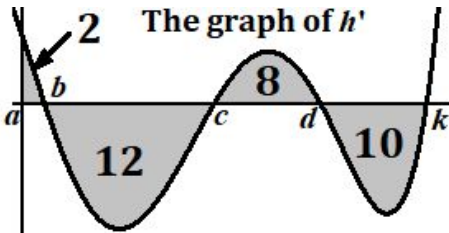
Ans: $1 + \pi$

_____ The values of the areas bounded by the curve h' , the derivative of h , and the x -axis on the interval $[a, k]$ are shown. Given $h(c) = 14$, find the minimum of $h(x)$.



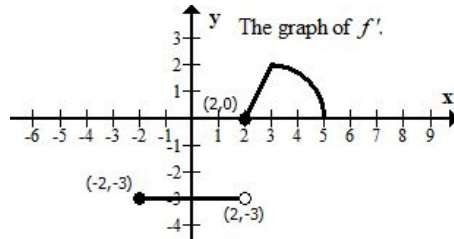
Ans: 0

_____ The values of the areas bounded by the curve h' , the derivative of h , and the x -axis on the interval $[a, k]$ are shown. Given $h(c) = 14$, find the maximum of $h(x)$.



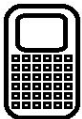
Ans: 4.4

_____ The graph of f' , the derivative of f is given, consisting of two line segments and a quarter circle. Given that $f(1) = 3$, find $f(5)$.



Ans: 1.584

_____ Oil is pumped into a tank at a rate modeled by $R(t) = 3 \cos(\pi t) + 5$ measured in gallons/min. If there are 30 gallons in the tank when the pump starts and no oil is being removed, how many gallons are in the tank after 102 seconds?



Ans: 37.727

_____ The graph of f' , the derivative of f is given, consisting of two line segments and a quarter circle. Given that $f(1) = 3$, find $f(2)$.

