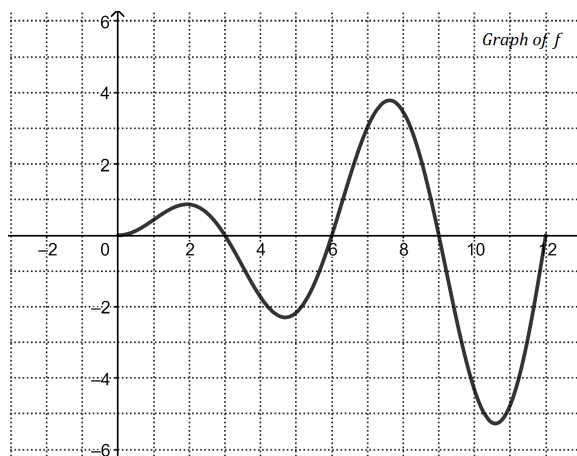


1. Suppose we are given the below data about $f : [0, 1] \rightarrow \mathbb{R}$.

$f(0)$	$f(\frac{1}{2})$	$f(1)$
0	$\frac{1}{\sqrt{2}}$	1

- (a) Use the part (c) to provide an approximation of $\int_0^1 f(x)dx$.
 - (b) Suppose $f(x) = \sqrt{x}$ then quantify the error in each approximation.
 - (c) Are their functions for which the approximation(s) will be exact ?
2. The graph of a function $f(t)$ is shown. Use it to answer the following questions.



- (a) Using 1(c) provide an approximation of the **average value** of this function over the interval $[0, 8]$.
- (b) Can you provide a better approximation of the same using 1(c) ?