AP CALCULUS AB

# INTEGRALS OF PIECEWISE-DEFINED FUNCTIONS

For problems **1** and **2**, given $y = f'(x)$ :

**a)** Graph $y = f'(x)$ on the grid provided.

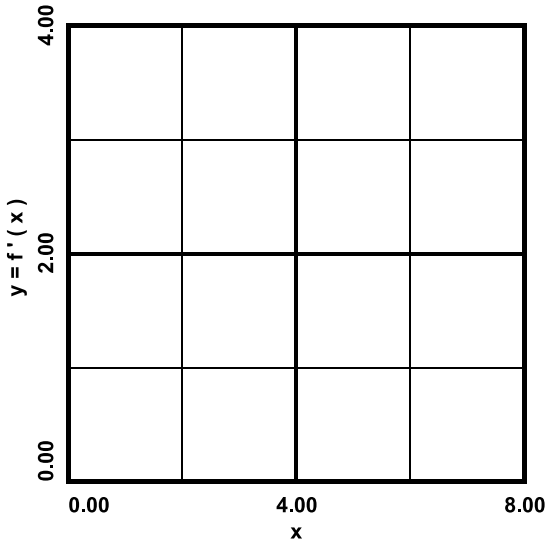
**b)** Calculate $y = f(x)$ for $x \in [0\,,8]$ using the initial condition $f(0) = 0$.

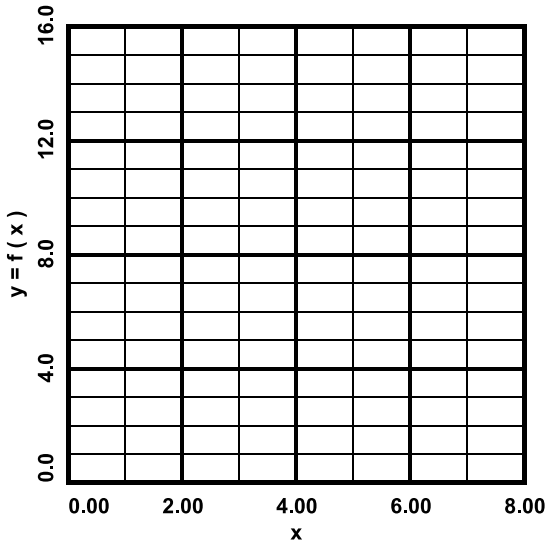
**c)** Graph $y = f(x)$ on the grid provided.

**d)** Is $f(x)$ differentiable at $x = 4$ ?

**1)**

$$f'(x) = \begin{cases} \frac{1}{2}x + 1 & , \quad 0 \le x < 4 \\ \frac{1}{2}x - 1 & , \quad 4 < x \le 8 \end{cases}$$



AP CALCULUS AB

INTEGRALS OF
PIECEWISE-DEFINED FUNCTIONS

**2)**

$$f'(x) = \begin{cases} \frac{1}{2}x + 1 & , \quad 0 \le x \le 4 \\ -\frac{1}{2}x + 5 & , \quad 4 < x \le 8 \end{cases}$$