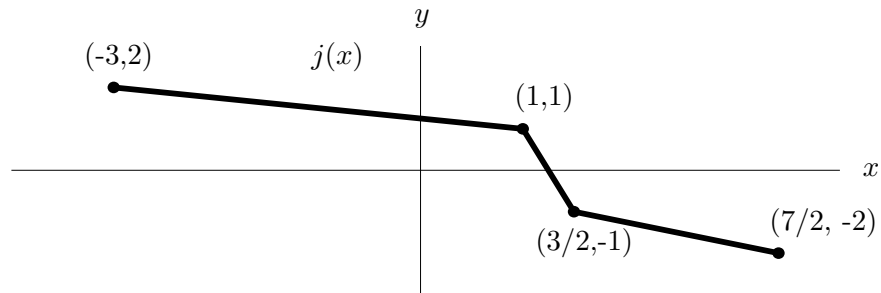


2. [15 points] The graph of a piecewise linear function $j(x)$ is given below. Use it to select the correct value of each derivative below. Circle only one answer for each part. Ambiguous marks will receive no credit.



- a. [3 points] $\frac{d}{dx}[j(4 \cos x)]$ at $x = \frac{\pi}{4}$.
 (A) $-1/2$
 (B) $\sqrt{2}$
 (C) $-\sqrt{2}/2$
 (D) $-\sqrt{2}$
- b. [3 points] $\frac{d}{dx}[j(j(x))]$ at $x = 2$.
 (A) $1/4$
 (B) $1/8$
 (C) $-1/4$
 (D) $-1/8$
- c. [3 points] $\frac{d}{dx}[2^{j(x)}]$ at $x = \frac{5}{4}$.
 (A) $-2 \ln 2$
 (B) $-\frac{1}{2} \ln 2$
 (C) $-4 \ln 2$
 (D) 0
- d. [3 points] $\frac{d}{dx}[j^{-1}(x)]$ at $x = 0$.
 (A) $1/4$
 (B) $1/2$
 (C) $-1/4$
 (D) $-1/2$
- e. [3 points] $j'(j(x))$ at $x = 3$.
 (A) $1/4$
 (B) $1/8$
 (C) $-1/4$
 (D) $-1/2$