

The function f is defined by $f(x) = (x+3)(x+1)$.
The graph of f in the xy -plane is a parabola. Which
of the following intervals contains the x -coordinate
of the vertex of the graph of f ? (h, k)

- A) $-4 < x < -3$
B) $-3 < x < -1$
C) $-1 < x < 1$
D) $1 < x < 3$

1st method

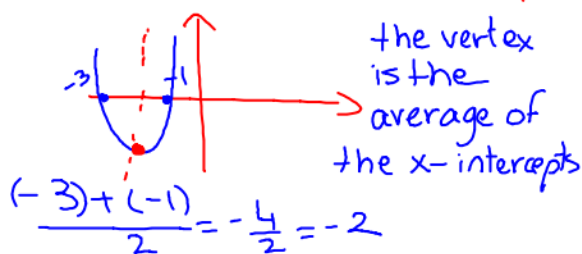
$$\begin{aligned}(x+3)(x+1) \\&= x^2 + x + 3x + 3 \\&= x^2 + 4x + 3 \\h &= -\frac{b}{2a} = -\frac{4}{2(1)} = -2\end{aligned}$$



2nd method

$$(x+3)(x+1)$$

• -3 and $-1 \rightarrow x$ -intercepts



$$\frac{(-3) + (-1)}{2} = -\frac{4}{2} = -2$$

choice B.