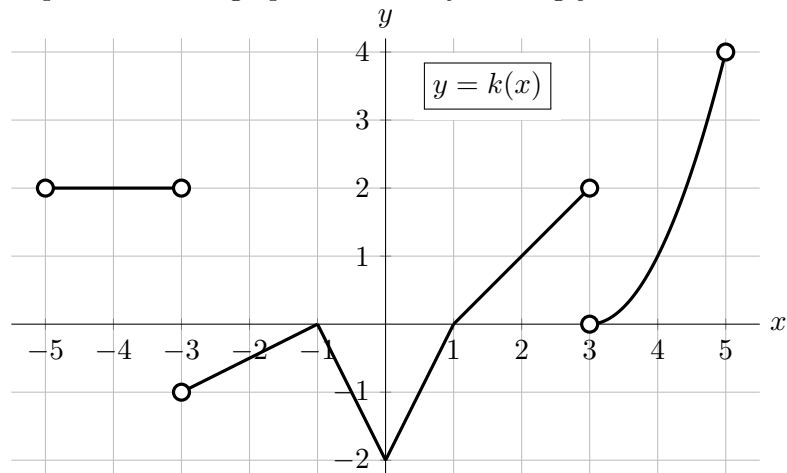


11. [10 points] The graph of a portion of  $y = k(x)$  is shown below. Note that for  $3 < x < 5$ , the graph of  $k(x)$  is a portion of the graph obtained by shifting  $y = x^2$  three units to the right.



Let  $K(x)$  be the continuous antiderivative of  $k(x)$  passing through the point  $(-1, 1)$ .

- a. [5 points] Use the graph to complete the table below with the exact values of  $K(x)$ .

$x$	-5	-3	-1	1	3	5
$K(x)$	-2	2	1	-1	1	$\frac{11}{3}$

- b. [5 points] On the axes below, sketch a detailed graph of  $y = K(x)$  for  $-5 < x < 5$ . Be sure that you pay close attention to each of the following:
- where  $K(x)$  is and is not differentiable,
  - the values of  $K(x)$  you found in the table above,
  - where  $K(x)$  is increasing/decreasing/constant, and the concavity of  $K(x)$ .

