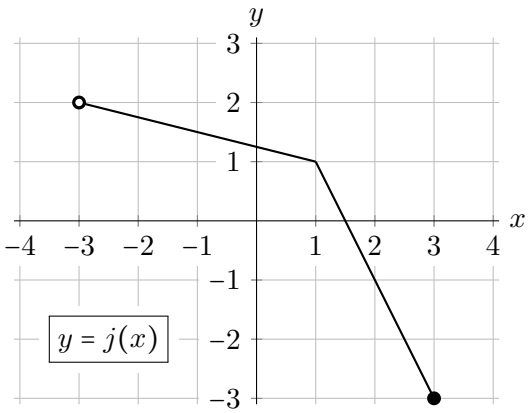
1. [9 points] The entire graph of a function $j(x)$, which is made up of two linear pieces, is shown below to the left. Also shown is a table of some values for a different function $k(x)$. Assume that the function $k(x)$ is invertible.



x	−3	−1	0	1	3	4
$k(x)$	−5	−3	−1	0	4	7

a. [2 points] Find the domain and range of $j(x)$. Give your answers using either interval notation or using inequalities. *You do not need to explain or justify your answer.*

Answer: $j(x)$ has domain $(-3, 3]$ and range $[-3, 2)$

b. [7 points] Find the **exact** value of each of the following, or write N/A if a value does not exist or there is not enough information to find it exactly. *You do not need to show work.*

i. $k^{-1}(4) =$ 3

ii. $j^{-1}(3) =$ **N/A**

iii. $j(k(1)) =$ $\frac{5}{4}$ **or** 1.25

iv. $m(0)$, where $m(x) = k(x-1) + 3$

Answer: $m(0) =$ 0

v. all values of x so that $k(j(x)) = -3$

Answer: $x =$ 2

vi. the average rate of change of $k(x)$ on the interval $[-3, 4]$

Answer: $\frac{12}{7}$