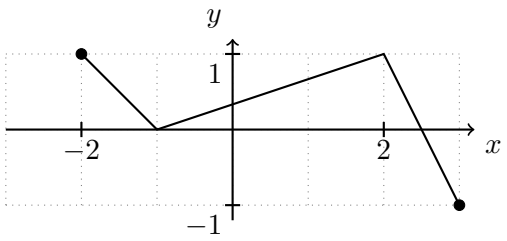
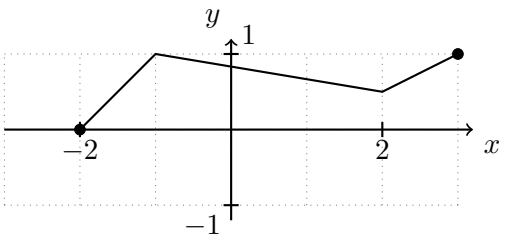
2. [12 points] Parts **a.** and **b.** of this problem are **unrelated** to each other.

a. [6 points] The graph of $y = f(x)$, defined on $[-2, 3]$ is given below.

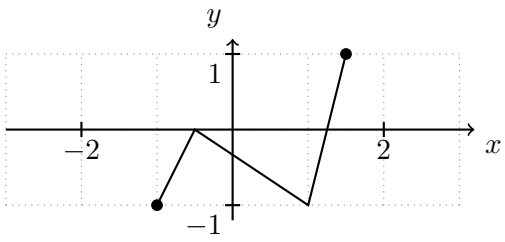


For each of the following two graphs, write a formula involving f that could give the graph.



This is the graph of

$y =$_____.



This is the graph of

$y =$_____.

b. [6 points] If a function $f(x)$ has domain $[0, 3)$, range $[-1, \infty)$, and a vertical asymptote at $x = 3$, find the domain, range and vertical asymptote of the function

$$g(x) = \frac{1}{3} f(-x + 1) - 2.$$

(i) The domain of $g(x)$ is _____.

(ii) The range of $g(x)$ is _____.

(iii) The vertical asymptote of $g(x)$ is _____.

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