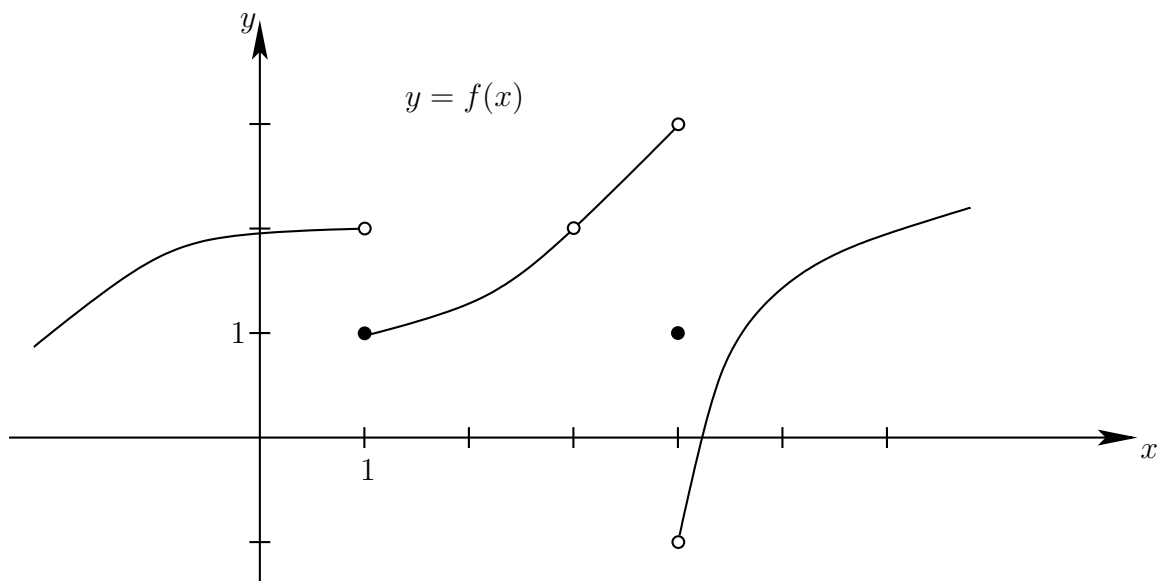


(1) [8 points] Let  $f(x) = x^3 + 2x^2$  and  $g(x) = 3x^2 - 1$ .

(i) Determine  $fg$  and state the domain.

(ii) Determine  $\frac{f}{g}$  and state the domain.

(2) [7 points] Consider the graph of  $y = f(x)$ :



(i) What is  $\lim_{x \rightarrow 1^+} f(x)$ ?

(ii) What is  $\lim_{x \rightarrow 1^-} f(x)$ ?

(iii) What is  $\lim_{x \rightarrow 3} f(x)$ ?

(iv) What is  $\lim_{x \rightarrow 4} f(x)$ ?