5. A function f, which is defined and continuous for all $x \neq 2$, satisfies the following conditions:

① $f(0) = 2$, $f(\sqrt{6}-2) = (22+8\sqrt{6})/25$

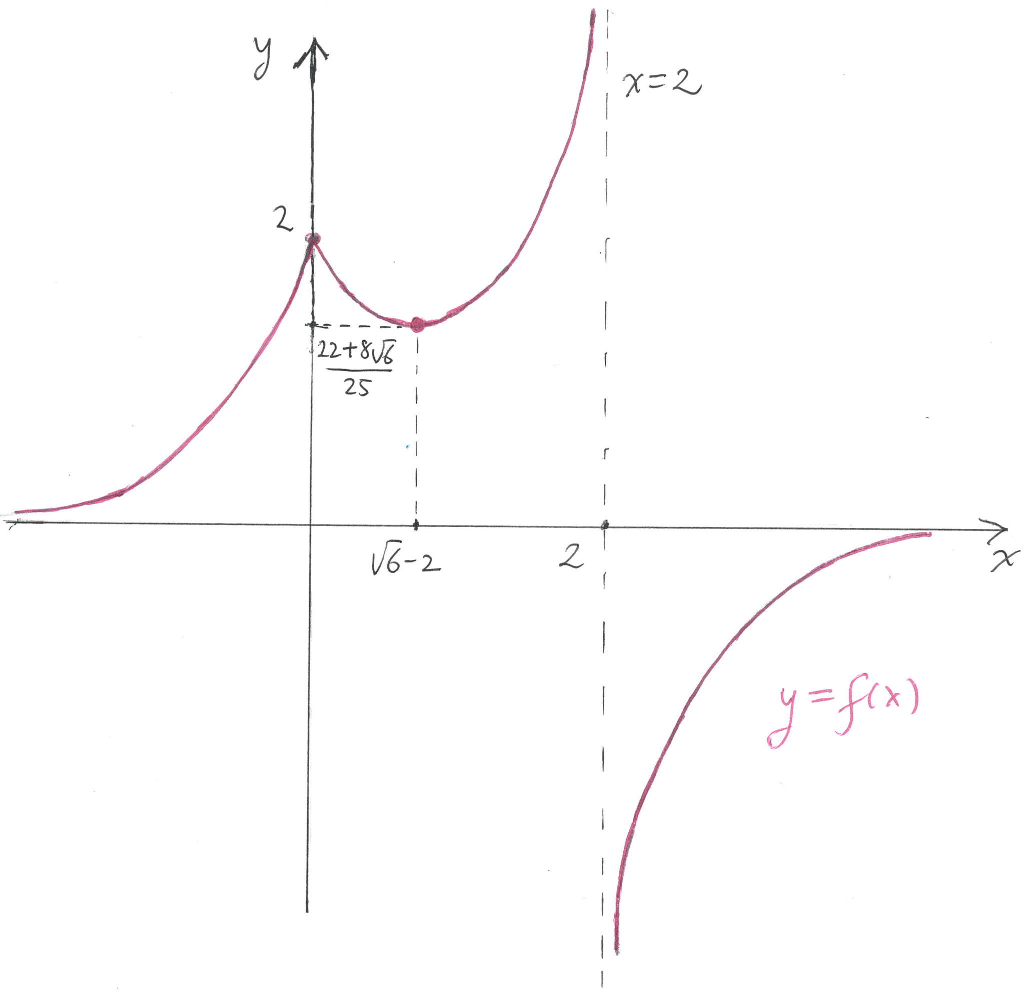
② $\lim_{x\to 2^-} f(x) = \infty$, $\lim_{x\to 2+} f(x) = -\infty$, $\lim_{x\to -\infty} f(x) = 0$, $\lim_{x\to\infty} f(x) = 0$

③ $f'(x) > 0$ for $x < 0$, and for $x > \sqrt{6}-2$ and $x \neq 2$; and $f'(x) < 0$ for $0 < x < \sqrt{6}-2$

④ $\lim_{x\to 0^-} f'(x) = 4$, $\lim_{x\to 0+} f'(x) = -2$

⑤ $f''(x) > 0$ for $x < 2$ and $x \neq 0$, $f''(x) < 0$ for $x > 2$

a. Sketch the graph of $y = f(x)$ making sure that all important features are clearly shown.



b. Fill in the boxes to make the following a true statement. No explanation is required.

The function $f(x) = \dfrac{ax+b}{x^2+c|x|+d}$ satisfies the conditions ①-⑤ at all points in its domain if a, b, c and d are chosen as

$a = \boxed{-1}$, $b = \boxed{-2}$, $c = \boxed{-\frac{3}{2}}$ and $d = \boxed{-1}$.