1. A function f that is defined and continuous for $x \neq 0$ satisfies the following conditions:

① $f(2-\sqrt{2}) = \sqrt[3]{1-1/\sqrt{2}}$, $f(2/3) = 0$, $f(2) = \sqrt[3]{2}$, $f(2+\sqrt{2}) = \sqrt[3]{1+1/\sqrt{2}}$

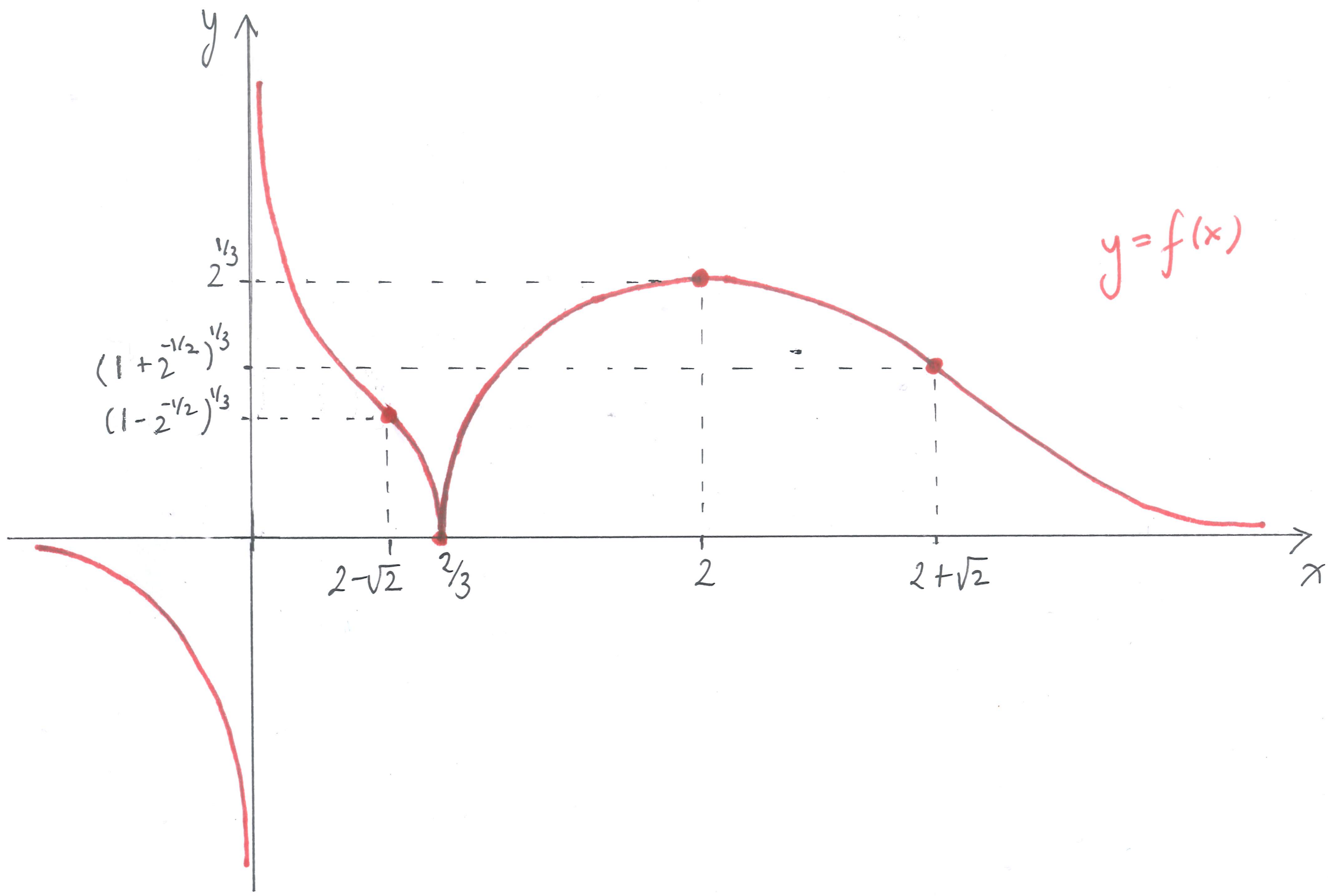
② $\lim_{x\to 0-} f(x) = -\infty$, $\lim_{x\to 0+} f(x) = \infty$, $\lim_{x\to -\infty} f(x) = 0$, $\lim_{x\to\infty} f(x) = 0$

③ $f'(x) < 0$ for $x < 2/3$ and $x \neq 0$, and for $x > 2$; $f'(x) > 0$ for $2/3 < x < 2$

④ $\lim_{x\to(2/3)-} f'(x) = -\infty$, $\lim_{x\to(2/3)+} f'(x) = \infty$

⑤ $f''(x) < 0$ for $x < 0$, and for $2-\sqrt{2} < x < 2+\sqrt{2}$ and $x \neq 2/3$; $f''(x) > 0$ for $0 < x < 2-\sqrt{2}$ and for $x > 2+\sqrt{2}$

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 $f(x) = (ax+b)^c x^d$ satisfies the conditions ①-⑤ if a, b, c and d are chosen as

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