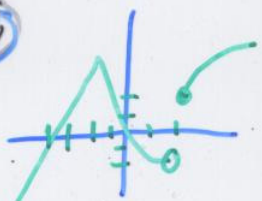
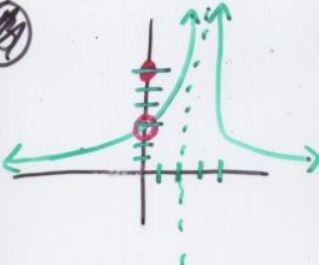


④  (1) Non differentiable $x=2 \notin \mathbb{R}$
 (2) $\lim_{x \rightarrow 2}$ DNE

⑤  (3) Non continuous $x=0 \notin \mathbb{R}$
 (4) $\lim_{x \rightarrow 0}$ & $\lim_{x \rightarrow 2}$
 $x=3$ ∞ or DNE

⑤ $\lim_{x \rightarrow 3^+} \sqrt{x-3} = \sqrt{3-3} = 0$

⑥ $y = \sqrt[3]{x}(x^2 - x)$ $\boxed{\frac{dy}{dx}}$

$y = x^{1/3}(x^2 - x) \rightarrow y = x^{7/3} - x^{4/3}$

$y' = \frac{7}{3}x^{4/3} - \frac{4}{3}x^{1/3}$

$\boxed{y' = \frac{x^{1/3}(7x-4)}{3}}$

⑦ $y = \frac{x+3}{x-4}$ $\boxed{\frac{d^2y}{dx^2}}$

$y' = \frac{(1)(x-4) - (x+3)(1)}{(x-4)^2} = \frac{x-4-x-3}{(x-4)^2} \quad y' = \frac{-7}{(x-4)^2}$

$y'' = \frac{0(x-4)^2 - (-7)(2(x-4)(1))}{((x-4)^2)^2} = \frac{14(x-4)}{(x-4)^4} = \frac{14}{(x-4)^3}$

$\boxed{y'' = \frac{14}{(x-4)^3}}$

⑧ $x^2 - 3y = 3xy^2 + 2$ $\boxed{y'}$

$2x - 3y' = (3y^2 + 3x \cdot 2yy')$
 $-3y^2 + 3y'$ $-3y^2 + 3y'$ $\rightarrow 2x - 3y^2 = 6xyy' + 3y'$

$\frac{2x - 3y^2}{6xy + 3} = \frac{y'(6xy + 3)}{6xy + 3}$

$\boxed{y' = \frac{2x - 3y^2}{3(2xy + 1)}}$