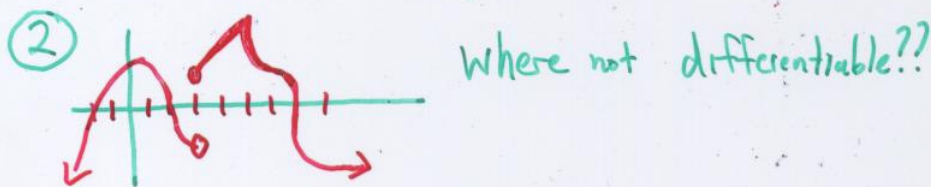


①  $s(t) = 4t^3 - 5t^2 + 1$      $a(5) = ?$

$s'(t) = 12t^2 - 10t$      $s''(t) = a(t)$      $a(5) = 24(5) - 10$   
 $s''(t) = 24t - 10$      $120 - 10 = 110$



$x = 3, 5, 7$

③  $f(x) = -2x^2 - 3x$     Derive by limit process (set up)

$\lim_{\Delta x \rightarrow 0} \frac{[-2(x+\Delta x)^2 - 3(x+\Delta x)] - [-2x^2 - 3x]}{\Delta x}$

④  $f(x) = 3x^2 - 5x + 1$     Where does it have a slope of 7?

$f'(x) = 6x - 5$

$6x - 5 = 7$   
 $\begin{matrix} +5 & +5 \\ 6x & = 12 \\ \hline x & = 2 \end{matrix}$

$f(2) = 3(2)^2 - 5(2) + 1$   
 $f(2) = 12 - 10 + 1 = 3$

$(2, 3)$

⑤  $3x^3 - 27x = 0$     solve for x

$3x(x^2 - 9) = 0$

$3x(x-3)(x+3) = 0$

$x = 0, 3, -3$

⑥  $y = \frac{x}{2x-3}$      $\frac{d^2y}{dx^2} = ?$

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

$y'' = \frac{0(2x-3)^2 - (-3)(2(2x-3)(2))}{(2x-3)^4} = \frac{12(2x-3)}{(2x-3)^4}$

$y'' = \frac{12}{(2x-3)^3}$

⑦  $y = \frac{1}{\sqrt{x^2-2}}$      $y' = ?$

$y = (x^2-2)^{-1/2}$

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

$y' = \frac{-x}{(x^2-2)^{3/2}}$