Ex4 $\int_0^2 \frac{1}{(2x-1)^{2/3}} = \int_0^{1/2} \frac{1}{(2x-1)^{2/3}}dx + \int_{1/2}^2 \frac{1}{(2x-1)^{2/3}}dx$

$f(x)$ undefined at $x = 1/2 \Rightarrow f$ not cont on $[0,2] \Rightarrow$ not integrable via FTC

$$\int_0^{1/2} \frac{1}{(2x-1)^{2/3}}dx = \lim_{t\to 1/2^-} \int_0^t \frac{1}{(2x-1)^{2/3}}dx = \lim \int_0^t \frac{1}{2}\cdot u^{-2/3}du = \lim_{t\to 1/2} \left[\frac{1}{2}\cdot u^{1/3}\cdot 3\right]_{-1}^{2t-1}$$

$u = 2x-1 \quad du = 2dx$

$$= \lim_{t\to 1/2} \left[\frac{3}{2}(2t-1)^{1/3} - \frac{3}{2}\cdot(-1)\right] = 0 + \frac{3}{2} = \frac{3}{2}$$

$$\int_{1/2}^2 \frac{1}{(2x-1)^{2/3}}dx = \lim_{t\to \frac{1}{2}^+} \int_t^2 \frac{1}{(2x-1)^{2/3}} = \lim \left[\frac{3}{2}(2x-1)^{1/3}\right]_t^2 = \lim_{t\to\frac{1}{2}^+} \left[\frac{3}{2}\left(3^{1/3} - (2t-1)\right)\right]$$

$$= \frac{3^{4/3}}{2} - 0 = \frac{3}{2}\cdot\sqrt[3]{3}$$

$$\Rightarrow \int_0^2 \frac{1}{(2x-1)^{2/3}} = \frac{3}{2}\left(1+\sqrt[3]{3}\right)$$