

$$\int_0^4 \frac{x-2}{\sqrt{x}} dx = \int_0^4 \frac{x-2}{x^{\frac{1}{2}}} dx \quad \sqrt{x} = x^{\frac{1}{2}}$$

$$\int_0^4 (x-2)(x^{-\frac{1}{2}}) dx = \int_0^4 x^{\frac{1}{2}} - 2x^{-\frac{1}{2}} dx$$

$$\int_0^4 \underline{x^{\frac{1}{2}}} dx - 2 \int_0^4 \underline{x^{-\frac{1}{2}}} dx$$

$$\int x^n dx = \frac{x^{n+1}}{n+1}$$

$$= \frac{x^{\frac{1}{2} + \frac{2}{2}}}{\frac{1}{2} + \frac{2}{2}} - 2 \left(\frac{x^{-\frac{1}{2} + \frac{2}{2}}}{-\frac{1}{2} + \frac{2}{2}} \right) \Big|_0^4$$

$$= \frac{x^{\frac{3}{2}}}{\frac{3}{2}} - 2 \frac{x^{\frac{1}{2}}}{\frac{1}{2}} \Big|_0^4 = \frac{2x^{\frac{3}{2}}}{3} - 4x^{\frac{1}{2}} \Big|_0^4 \quad \begin{matrix} 4=6 \\ 0=4 \end{matrix}$$

$$= \frac{2}{3} (4^{\frac{3}{2}} - \cancel{0^{\frac{3}{2}}}) - 4 (4^{\frac{1}{2}} - \cancel{0^{\frac{1}{2}}})$$

$$= \frac{2}{3} (8) - 4 (2) = \frac{16}{3} - 8$$

$$= \frac{16}{3} - \frac{24}{3} = \underline{\underline{-\frac{8}{3}}}$$