

EJERCICIO M2BE2300:

$$\begin{aligned} & \int \frac{3x^2 + 5x - 3}{\sqrt[3]{x}} dx = \\ & = \int \left(\frac{3x^2}{\sqrt[3]{x}} + \frac{5x}{\sqrt[3]{x}} - \frac{3}{\sqrt[3]{x}} \right) dx = \\ & = 3 \int x^2 \cdot x^{-\frac{1}{3}} dx + 5 \int x \cdot x^{-\frac{1}{3}} dx - 3 \int x^{-\frac{1}{3}} dx = \\ & = 3 \int x^{\frac{5}{3}} dx + 5 \int x^{\frac{2}{3}} dx - 3 \int x^{-\frac{1}{3}} dx = \\ & = 3 \cdot \frac{x^{\frac{5}{3}+1}}{\frac{5}{3}+1} + 5 \cdot \frac{x^{\frac{2}{3}+1}}{\frac{2}{3}+1} - 3 \cdot \frac{x^{-\frac{1}{3}+1}}{-\frac{1}{3}+1} = \\ & = 3 \cdot \frac{x^{\frac{8}{3}}}{\frac{8}{3}} + 5 \cdot \frac{x^{\frac{5}{3}}}{\frac{5}{3}} - 3 \cdot \frac{x^{\frac{2}{3}}}{\frac{2}{3}} = \\ & = \frac{9}{8} \sqrt[3]{x^8} + 3 \cdot \sqrt[3]{x^5} - \frac{9}{2} \sqrt[3]{x^2} = \\ & = \frac{9}{8} x^2 \sqrt[3]{x^2} + 3x \sqrt[3]{x^2} - \frac{9}{2} \sqrt[3]{x^2} = \\ & = \left(\frac{9}{8} x^2 + 3x - \frac{9}{2} \right) \cdot \sqrt[3]{x^2} + C \end{aligned}$$