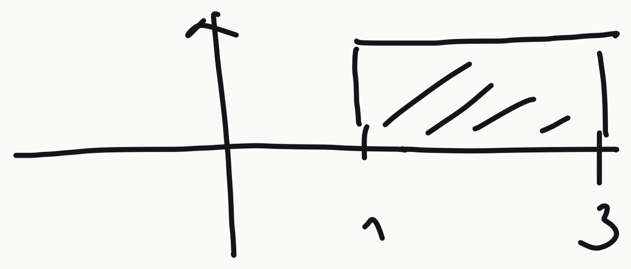
$$\boxed{2} = \int_1^3 1\,dx = \boxed{A_0\, 1 + A_1 \cdot 1}$$



$$\left[\frac{x^2}{2}\right]_1^3 = \int_1^3 x\,dx = \boxed{A_0 \cdot 1 + A_1 \cdot \frac{7}{3}}$$

$$\left.\begin{matrix} \boxed{A_0\, 1 + A_1 \cdot 1} \\ \boxed{A_0 \cdot 1 + A_1 \cdot \frac{7}{3}} \end{matrix}\right\} (-):$$

$$-2 = -\frac{4}{3} A_1$$

$$\boxed{A_1 = \frac{3}{2}}$$

$$\boxed{A_0 = \frac{1}{2}}$$

$$= \frac{9}{2} - \frac{1}{2} = \boxed{4}$$

$$\int_1^3 f(x)\,dx = \frac{1}{2} \cdot f(1) + \frac{3}{2} \cdot f\left(\frac{7}{3}\right)$$

NAPAKA: $C \cdot f^{(m)}(\xi)$

$$m \geq 2$$

$$\left[\frac{x^3}{3}\right]_1^3 = \int_1^3 x^2\,dx = \frac{1}{2} + \frac{\cancel{3}}{2} \cdot \left(\frac{7}{\cancel{3}}\right)^2 = \frac{1}{2} + \frac{49}{6} = \boxed{\frac{52}{6}} + \boxed{C \cdot 2}$$

$$\cancel{3} \cdot 3$$

$$9 - \frac{1}{3} = \boxed{\frac{26}{3}}$$

$$C = \frac{26 \cdot 2}{6} - \frac{52}{6} = \frac{52 - 52}{6} = 0$$

$$\Rightarrow m \geq 3$$

$$\underbrace{\frac{3^4}{4} - \frac{1}{4}} = \int_1^3 x^3\,dx = \frac{1}{2} + \frac{3}{2} \cdot \left(\frac{7}{3}\right)^3 + C \cdot 6$$

$$\frac{80}{4} = 20 = \frac{9 + 7^3}{18} + C6$$

$$C = \frac{1}{6}\left(20 - \frac{9 + 7^3}{18}\right) = \underline{\underline{\frac{2}{27}}}$$

b) $$\int_1^3 \frac{1}{x}\,dx \doteq \frac{1}{2} \cdot 1 + \frac{3}{2} \cdot \frac{3}{7} = \frac{7 + 9}{14} = \frac{16}{14} = \boxed{\frac{8}{7}}$$

NAPAKA: $\left|\frac{2}{27}\left(\frac{1}{x}\right)^{(3)}(\xi)\right| = \left|\frac{2}{27}\left(\frac{(-1)(-2)(-3)}{x^4}\right)(\xi)\right|$

$$\underset{[1,3]}{\leq} \left|\frac{2}{27} \cdot 6\right| = \boxed{\frac{12}{27}}$$