PARTE A

1) a) $\int 4\,dx$

$4x + C$

b) $\int 7x\,dx$

$\frac{7x^2}{2} + C$

2) a) $\int 5x^3\,dx$

$\frac{5x^4}{4} + C$

b) $\int 3t^7\,dt$

$\frac{3t^8}{8} + C$

3) a) $\int \frac{2}{5}x^2\,dx$

$\frac{\frac{2}{5}x^3}{3} + C$

b) $\int \frac{5}{6}x^3\,dx = \frac{\frac{5}{6}x^4}{4} + C$

4) a) $\int 2x^4 - 3x\,dx$

$\frac{2x^5}{5} - \frac{3x^2}{2} + C$

b) $\int 2 - 3t^3\,dt$

$2x - \frac{3t^4}{4} + C$

5) a) $\int \frac{3x^2 - 5x}{x}\,dx$

$\frac{\frac{3x^3}{3} - \frac{5x^2}{2} + C}{\frac{x^2}{2}}$

b) $\int (2+\theta)^2\,d\theta$

$4 + 4\theta + \theta^2$

$4\theta + \frac{4\theta^2}{2} + \frac{\theta^3}{3} + C$

6) a) $\int (2+\theta)(3\theta - 1)\,d\theta$

$6\theta - 2 + 3\theta^2 - \theta$

$3\theta^2 + 5\theta - 2$

$\frac{3\theta^3}{3} + \frac{5\theta^2}{2} - 2\theta + C$

b) $\int (3x-2)(x^2+1)\,dx$

$3x^3 + 3x - 2x^2 - 2$

$3x^3 - 2x^2 + 3x - 2$

$\frac{3x^4}{4} - \frac{2x^3}{3} + \frac{3x^2}{2} - 2x + C$

7) a) $\int \frac{4}{3x^2}\,dx$

$\frac{4x}{3x^3} + C$

b) $\int \frac{3}{4x^4}\,dx$

$\frac{3x}{4x^5} + C$

8) $2\int \sqrt{x^5}\,dx$

a) $x^{\frac{5}{2}}$

$\frac{x^{\frac{5}{2}}}{5/2} = \frac{2}{5}x^{\frac{5}{2}} = 2 \cdot \frac{2}{5}\sqrt{x^5} = \frac{4}{5}\sqrt{x^5} + C$

b) $\int \frac{1}{4}\sqrt[4]{x^5}\,dx$

$\frac{1}{4}x^{\frac{5}{4}}$

$\frac{\frac{1}{4}x^{\frac{9}{4}}}{9/4} = \frac{1}{4}\cdot\frac{4}{9}\sqrt[4]{x^9} = \frac{4}{36}\sqrt[4]{x^9} = \frac{1}{9}\sqrt[4]{x^9} + C$

PARTE B:

1) a) $\int_1^2 x\,dx$

$\frac{x^2}{2}$

$\frac{2^2}{2} - \frac{1}{2}$

$\underbrace{2 - 0{,}5}$

$\frac{3}{2}$

b) $\int_2^4 x-1\,dx$

$\frac{x^2}{2} - 1x$

$\frac{4}{2} - 2 - \frac{1}{2} - 1$

$-\frac{3}{2}$

2) a) $\int_1^4 5x^2\,dx$

$\frac{5x^3}{3}$

$\frac{5.4^3}{3} - \frac{5}{3}$

$\frac{5.64}{3} - \frac{5}{3}$

$\underbrace{\frac{320}{3} - \frac{5}{3}}$

$\frac{315}{3}$

105

b) $\int_{-1}^{1} -\frac{3}{4}t^2\,dt$

$\frac{-\frac{3}{4}t^3}{3}$

$\frac{1}{3}\left(-\frac{3}{4}t^3\right)$

$-\frac{3}{12} = -\frac{1}{4}t^3$

$\underbrace{-\frac{1}{4} - \left(+\frac{1}{4}\right)}$

$-\frac{2}{4}$

$-\frac{1}{2}$