

1981 AB 7

FRQ notes
Pg. 27

$$a) \frac{1}{3-1} \int_1^3 f(x) dx$$

$$\frac{1}{2} \cdot \frac{5}{2} = \frac{5}{4}$$

$$b) \int_3^5 (2f(x) + 6) dx$$

$$= 2 \int_3^5 f(x) dx + \int_3^5 6 dx$$

$$= 2 \left(10 - \frac{5}{2} \right) + (6x + C) \Big|_3^5$$

$$= 15 + 30 + C - (18 + C)$$

$$= 27$$

$$c) \int_1^3 (ax + b) dx = \frac{5}{2}$$

$$\frac{a}{2} x^2 + bx + C \Big|_1^3 = \frac{5}{2}$$

$$\frac{9a}{2} + \dots + C - \left(\frac{a}{2} + b + C \right) = \frac{5}{2}$$

$$4a + 2b = \frac{5}{2}$$

$$\int_1^5 (ax + b) dx = 10$$

$$\frac{a}{2} x^2 + bx + C \Big|_1^5 = 10$$

$$\frac{25a}{2} + 5b + C - \left(\frac{a}{2} + b + C \right) = 10$$

$$12a + 4b = 10$$

$$\begin{array}{r} 12a + 4b = 10 \\ -8a - 4b = -5 \\ \hline 4a = 5 \end{array}$$

$$a = \frac{5}{4}$$

$$12 \left(\frac{5}{4} \right) + 4b = 10$$

$$15 + 4b = 10$$

$$4b = -5$$

$$b = -\frac{5}{4}$$