$$\int_0^4 x^2\,dx$$

$$\frac{x^3}{3}\Big|_0^4$$

$$@4 - @0$$

$$\frac{4^3}{3} - \frac{0^3}{3}$$

$$\frac{64}{3} - \frac{0}{3} = \frac{64}{3}$$

(2) $$\int_3^5 x^3\,dx$$

$$\frac{x^4}{4}\Big|_3^5$$

$$@5 - @3$$

$$\frac{5^4}{4} - \frac{3^4}{4}$$

$$\frac{625}{4} - \frac{81}{4} = \frac{544}{4}$$

(3) $$\int_2^7 x\,dx$$

$$\frac{x^2}{2}\Big|_2^7$$

$$@7 - @2$$

$$\frac{7^2}{2} - \frac{2^2}{2} = \frac{49}{2} - \frac{4}{2} = \frac{45}{2}$$

$$\int_3^8 x^5\,dx$$

$$\frac{x^6}{6}\Big|_3^8$$

$$@8 - @3$$

$$\frac{8^6}{6} - \frac{3^6}{6}$$

$$\frac{262,144}{6} - \frac{729}{6} = \frac{261,415}{6}$$

(5) $$\int_4^9 2x\,dx$$

$$\frac{2x^2}{2}\Big|_4^9 \quad \text{Reduce} \quad x^2\Big|_4^9$$

$$@9 - @4$$

$$9^2 - 4^2$$

$$81 - 16 = 65$$

(6) $$\int_0^7 2x + 1\,dx$$

$$\frac{2x^2}{2} + \frac{1x^1}{1}\Big|_0^7 \quad \text{Reduce} \quad x^2 + x\Big|_0^7$$

$$@7 - @0$$

$$(7^2+7) - (0^2+0)$$

$$(49+7) - (0)$$

$$56$$

(7) $\int_2^6 3x - 1 \, dx$

$$\frac{3x^2}{2} - \frac{1x^1}{1} \Big|_2^6$$

Reduce

$$\frac{3x^2}{2} - x \Big|_2^6$$

@6 − @2

$$\left(\frac{3(6)^2}{2} - 6\right) - \left(\frac{3(2)^2}{2} - 2\right)$$

$$\left(\frac{108}{2} - 6\right) - \left(\frac{12}{2} - 2\right)$$

$$(54 - 6) - (6 - 2)$$

$$48 - 4 = (44)$$

(8) $\int_1^5 2x^2 \, dx$

$$\frac{2x^3}{3} \Big|_1^5$$

@5 − @1

$$\frac{2(5)^3}{3} - \frac{2(1)^3}{3}$$

$$\frac{250}{3} - \frac{2}{3} = \left(\frac{248}{3}\right)$$

(9) $\int_4^{12} 2x^3 + 3 \, dx$

$$\frac{2x^4}{4} + \frac{3x^1}{1} \Big|_4^{12}$$

Reduce

$$\frac{x^4}{2} + 3x \Big|_4^{12}$$

@12 − @4

$$\left(\frac{12^4}{2} + 3(12)\right) - \left(\frac{4^4}{2} + 3(4)\right)$$

$$\left(\frac{20,736}{2} + 36\right) - \left(\frac{256}{2} + 12\right)$$

$$(10,368 + 36) \quad (128 + 12)$$

$$(10,404) - (140)$$

$$(10,264)$$

(10) $\int_2^9 2x^4 + 4x \, dx$

$$\frac{2x^5}{5} + \frac{4x^2}{2} \Big|_2^9$$

Reduce

$$\frac{2x^5}{5} + 2x^2 \Big|_2^9$$

@9 − @2

$$\left(\frac{2(9)^5}{5} + 2(9)^2\right) - \left(\frac{2(2)^5}{5} - 2(2)^2\right)$$

$$\left(\frac{118098}{5} + 162\right) - \left(\frac{64}{5} - 8\right)$$

$$\left(\frac{118,098}{5} + \frac{810}{5}\right) - \left(\frac{64}{5} + \frac{40}{5}\right) = \frac{118804}{5}$$