2(a)(iii) cont. $= \left[\frac{8(3)^6}{6} + \frac{24(3)^4}{4} + \frac{18(3)^2}{2} + \frac{12(3)^5}{5} + \frac{36(3)^3}{3} + 27(3)\right] - [0]$

$= \underline{2527.2}$

2(a)(iv) $\int_2^5 x^3 + 2x^2 - x + 5\,dx$

$= \left[\frac{x^4}{4} + \frac{2x^3}{3} - \frac{x^2}{2} + 5x\right]_2^5$

$= \left[\frac{(5)^4}{4} + \frac{2(5)^3}{3} - \frac{(5)^2}{2} + (5)(5)\right] - \left[\frac{(2)^4}{4} + \frac{2(2)^3}{3} - \frac{(2)^2}{2} + (5)(2)\right]$

$= 252.083 - 17.333$
$= \underline{234.75}$

2(b)(i) $\int 3x \sin 5x\,dx$

$u = 3x \qquad \frac{dv}{dx} = \sin 5x$
$\frac{du}{dx} = 3 \qquad v = -\frac{1}{5}\cos 5x$

$\therefore 3x\left(-\frac{1}{5}\cos 5x\right) - \int -\frac{3}{5}\cos 5x\,dx$

$= \frac{-3x}{5}\cos 5x + \frac{3}{25}\sin x + C$