1. **(1)** $\dfrac{18}{5}x^5 - 2x^2 - 6x + C$

   (2) -30

   (3) $\displaystyle\int_{-2\pi}^{-\pi} \left(-15\sin\left(-x\right) - 10\cos\left(-x\right)\right) dx = 30$

2. **(1)** $-\dfrac{8}{3}x^3 + \dfrac{5}{2}x^2 + 9e^x + C$

   (2) 108

   (3) $\displaystyle\int_{-2\pi}^{\pi/2} \left(-12\sin\left(-3x\right) - 8\cos\left(-4x\right)\right) dx = 4$

3. **(1)** $2x^6 + \dfrac{1}{2}x^2 - 3x + C$

   (2) -26

   (3) $\displaystyle\int_{-3\pi}^{-2\pi} \left(20\sin\left(2x\right)\right) dx = 0$

4. **(1)** $x^7 + 3\sin x - 9x + C$

   (2) 16

   (3) $\displaystyle\int_{3\pi}^{4\pi} \left(-20\sin\left(-4x\right) + 3\cos\left(3x\right)\right) dx = 0$

5. **(1)** $-x^3 - 5e^x + 8\cos x + C$

   (2) 44

   (3) $\displaystyle\int_{2\pi}^{3\pi} \left(20\cos\left(4x\right)\right) dx = 0$