

**MA205 - Integral Calculus**  
**Lesson 9: Indefinite Integrals and Net Change**  
**Class Problems**

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Given the function, find the indefinite or definite integral. Check your work with Mathematica.

$$1. \int -4e^t dt$$

$$2. \int -4 \sin(x) + 1 dx$$

$$3. \int_3^4 \frac{1+x}{x^2} dx$$

$$4. \int_1^9 (1 + \sqrt{x})^2 dx$$

$$5. \int_0^{\pi} -4\sin(x) + 1 dx$$

$$6. \int \frac{47}{u} + \frac{1}{u^2} du$$

$$7. \int -\cos(y) + y^{3/2} dy$$

$$8. \int_{-\sqrt{3}}^{\sqrt{3}} (t+1)(t^2+4) dt$$