

**Practice: Integration techniques**

1) Integration by parts:

$$\int 4x \cos(2 - 3x) dx$$

$$\int_6^0 (2 + 5x) e^{\frac{1}{3}x} dx$$

2) Integrals of Trig functions:

$$\int \sin^8(3z) \cos^5(3z) dz$$

3) Using trig substitutions:

$$\int \frac{\sqrt{x^2 + 16}}{x^4} dx$$

4) Using partial fractions:

$$\int \frac{8 - 3t}{10t^2 + 13t - 3} dt$$

5) Integrals involving roots:

$$\int \frac{7}{2 + \sqrt{x - 4}} dx$$

6) Improper integrals:

$$\int_0^{\infty} (1 + 2x) e^{-x} dx$$