

1. Evaluate the following integrals.

(a) $\int_1^4 x^3 - 2x \, dx$

(d) $\int_1^3 3x^2 \ln(x) + x^3 \left(\frac{1}{x}\right) \, dx$

(b) $\int_{-1}^2 e^x \, dx$

(e) $\int_0^1 \sin(x^2) \, dx$

(c) $\int_1^3 2x \cos(x^2) \, dx$

2. Find the area of the region that is above the graph of $y = 2x^2$ and below the graph of $y = -5x + 3$.