

1M01 Mathematical Methods 2010–11
Calculus tutorial exercise sheet 7

1. Compute the derivatives of the following expressions with respect to x :

(a) $\frac{x}{1-x}$

(b) $3x - x^8 \cos(x)$

(c) $\frac{\sin(2\pi x)}{5} + 1$

(d) $-2 \cos(4x) \sin(x)$

(e) $\cos(x^3 - 2)$

2. Find the following antiderivatives.

(a) $\int 3x^5 \sqrt{x^6 - 2} dx$

(b) $\int 1500t(5t^2 + 4)^{99} dt$

(c) $\int 1500t(5t + 4)^{99} dt$

(d) $\int 18x \cos(3x + 4) dx$

(e) $\int \frac{x^2(2x^3 + 5)^{12} - 4}{7} dx$