

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

1. Simply the following expressions by rewriting them without brackets and using the power laws to simplify powers.

(a) $-6(y - 2) + 4y$ (b) $1.5(-1)^2$ (c) $-2(x - 1)^2 \cdot (-2x)$

(d) $(-0.1t)^3$ (e) $w^2 \cdot \frac{w \cdot w^{2n-3}}{(2w^n)^2}$

2. Rewrite the following as a single fraction:

(a) $\frac{1}{3} - \frac{1}{2}$ (b) $\frac{3x}{5} + \frac{1}{y^2}$ (c) $(a + b)^{-1} - (a - b)^{-1}$

3. Rewrite without using powers or brackets:

(a) $\left(\frac{-2}{3}\right)^{-3}$ (b) $4 \cdot 5^0$ (c) 2^{-3^2}

(d) $(x^2 + 4)^1$ (e) $(3x)^2(x^3)^{-4}$

4. Solve:

(a) $x + 4 = 3x$ (b) $-\frac{2}{3}t = 8$ (c) $3(-1 + z^{-1}) = 4.5$