

# TMUA Exercises – Differentiation - Sol'ns

(2 pages; 2/11/22)

(1) If  $f(x) = x^2$ , what is  $f'(3x)$ ?

**Solution****Method 1**

Note that the differentiation is wrt  $3x$  (rather than  $x$ ).

Let  $u = 3x$ . Then  $f'(3x) = f'(u) = \frac{d}{du}(u^2) = 2u = 2(3x) = 6x$

**Method 2**

$f'(x) = 2x \Rightarrow f'(3x) = 2(3x) = 6x$