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Differentiation from First Principles

(Haf 2005)

3. Differentiate $\frac{1}{x^2 + x}$ from first principles. [6]

(Gaeaf 2006)

3. Differentiate $\frac{1}{1 - x^2}$ from first principles. [6]

(Haf 2006)

2. Differentiate $\frac{1}{2x - 3}$ from first principles. [6]

(Haf 2007)

1. Differentiate x^4 from first principles. [6]

(Gaeaf 2009)

1. (a) Differentiate 2^x . [3]

- (b) Differentiate $\frac{x}{x + 1}$ from first principles. [6]

(Haf 2010)

1. Differentiate $\frac{1}{1 + x^2}$ from first principles. [6]

(Haf 2011)

1. Differentiate $\frac{1}{x^3}$ from first principles. [6]

(Gaeaf 2012)

1. Differentiate $\frac{1}{1 - x}$ from first principles. [6]

(Gaeaf 2013)

1. Differentiate $\frac{1}{2 + x^2}$ from first principles. [6]

(Gaeaf 2014)

1. Differentiate $\frac{x}{1+x}$ from first principles. [6]

(Haf 2014)

1. (a) Differentiate $\frac{1}{x^2}$ from first principles. [6]

(b) The function f is defined on the domain $\left(0, \frac{\pi}{2}\right)$ by

$$f(x) = (\sec x)^x.$$

Obtain an expression for $f'(x)$, simplifying your answer. [4]

(Haf 2015)

1. Differentiate $\frac{1}{x^2 - x}$ from first principles. [7]

(Haf 2016)

1. Differentiate $\frac{x^2}{x+1}$ from first principles. [7]

(Haf 2019)

1. Differentiate $\frac{1}{x^3}$ from first principles. [6]