



**CHEMISTRY ONLINE**  
— **TUITION** —

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# **PURE MATH**

## **ALGEBRA AND FUNCTION**

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	DIFFERENTIATION
PAPER TYPE:	QUESTION PAPER - 3
TOTAL QUESTIONS	8
TOTAL MARKS	43

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**Questions****Q1.**

A curve has equation

$$y = \tan(2x)$$

(a) Find, in simplest form,  $\frac{dy}{dx}$  (3)

(b) Hence find the exact range of value of  $x$  for which the curve is increasing. (2)

**(Total for question = 5 marks)**

**Q2.**

A curve has equation

$$y = \ln(x^2 + 4x + 5)$$

(a) Find, in simplest form,  $\frac{dy}{dx}$  (3)

(b) Hence find the exact range of value of  $x$  for which the curve is increasing. (3)

**(Total for question = 6 marks)**

I am Sorry !!!!!

**Q3.**

A curve has equation

$$y = \frac{x^3 - 2x^2 - 2x + 2}{x^3 + 2x}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

(2)

(b) Hence find the exact range of value of  $x$  for which the curve is increasing.

(3)

**(Total for question = 5 marks)**

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**Q4.**

A curve has equation

$$y = \frac{2x^3 - 6x^2 + 4x + 3}{x^2 - 2x + 1}$$

**(a)** Find, in simplest form,  $\frac{dy}{dx}$ **(3)****(b)** Hence find the exact range of value of  $x$  for which the curve is increasing.**(3)****(Total for question = 6 marks)****Q5.**

A curve has equation

$$y = \frac{x^3 - 6x^2 + 9x + 8}{x^2 - 4x + 3}$$

**(a)** Find, in simplest form,  $\frac{dy}{dx}$ **(2)****(b)** Hence find the exact range of value of  $x$  for which the curve is increasing.**(2)****(Total for question = 4 marks)**

**Q6.**

A curve has equation

$$y = \frac{x^4 - 16x^2}{x^3 - 8}$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

**(4)**

(b) Hence find the exact range of value of x for which the curve is increasing.

**(2)**

**(Total for question = 6 marks)**

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**Q7.**

A curve has equation

$$y = \sin(x) + x^2$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

(2)

(b) Hence find the exact range of value of  $x$  for which the curve is increasing.

(2)

**(Total for question = 4 marks)**

**Q8.**

A curve has equation

$$y = e^{2x} + \ln(x)$$

(a) Find, in simplest form,  $\frac{dy}{dx}$

(4)

(b) Hence find the exact range of value of  $x$  for which the curve is increasing.

(3)

**(Total for question = 7 marks)**

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**DR. ASHAR RANA**



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- CIE & EDEXCEL Examiner since 2015
- Chemistry, Physics, and Math's Tutor

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