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# **PURE MATH**

## **ALGEBRA AND FUNCTION**

|                          |                           |
|--------------------------|---------------------------|
| <b>Level &amp; Board</b> | <b>EDEXCEL (A-LEVEL)</b>  |
| <b>TOPIC:</b>            | <b>DIFFERENTIATION</b>    |
| <b>PAPER TYPE:</b>       | <b>QUESTION PAPER - 5</b> |
| <b>TOTAL QUESTIONS</b>   | <b>8</b>                  |
| <b>TOTAL MARKS</b>       | <b>43</b>                 |

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**Questions****Q1.**

A curve has equation

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

(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

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

(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)**

I am Sorry !!!!!

**Q3.**

A curve has equation

$$y = |x^2 - 4x + 3|$$

(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.

**(3)**

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

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**Q4.**

A curve has equation

$$y = \frac{4x^3 - 6x^2 - 36x + 15}{x^2 - 6x + 8}$$

(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

$$y = \frac{2x^3 - 3x^2 + 4x - 5}{x^2 - 2x + 1}$$

(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

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

(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

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

(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.

**(2)****(Total for question = 4 marks)****Q8.**

A curve has equation

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

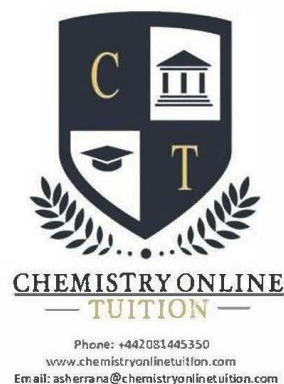
(a) Find, in simplest form,  $\frac{dy}{dx}$ **(4)**

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

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



**DR. ASHAR RANA**



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