Foundation Mathematics U:PASS

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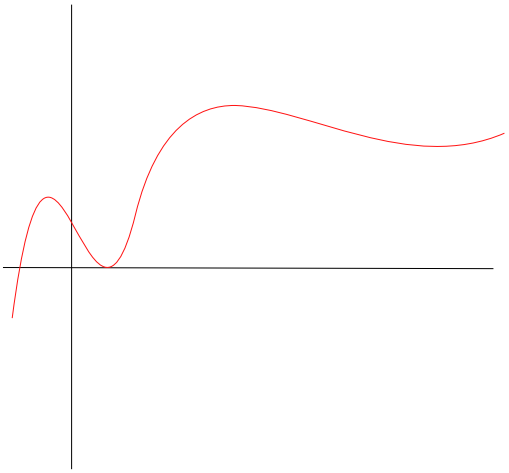
January 3, 2019

Question 1

Sketch (to the right) the inverse of the function below.



Question 2

Differentiate the following functions:

$$\frac{x^4}{4} + \frac{x^3}{27} \tag{1}$$

$$\ln\left(x^2 + 4x + 5\right) \tag{2}$$

$$\frac{x^3 + 4x^2 + 7}{4x^3 + 7x + 29} \tag{3}$$

$$\left(x - 2\right)\left(x^4 + 39x^2 + 405\right) \tag{4}$$

Question 3

Find:

$$\lim_{n\to\infty} \left(1 + \frac{1}{n}\right)^n \tag{5}$$

Question 4

Derive the following formulae related to geometric progressions:

Finding the nth term in the geometric progression. (6)

Finding the partial sum up to the nth term. (7)