

Question 1

Solve $2\cos(2x) = -\sqrt{3}$ for x , where $0 \leq x \leq \pi$.

Question 2

a. If $y = x^2 \log_e(x)$, find $\frac{dy}{dx}$. 2 marks

b. Let $f(x) = e^{x^2}$.
Find $f'(3)$. 3 marks

Question 5

- a. Differentiate x^3e^{2x} with respect to x .

2 marks

- b. For $f(x) = \log_e(x^2 + 1)$, find $f'(2)$.

2 marks

Question 6

- a. Let $f(x) = e^{\cos(x)}$. Find $f'(x)$

1 mark

- b. Let $y = x \tan(x)$. Evaluate $\frac{dy}{dx}$ when $x = \frac{\pi}{6}$.

3 marks