

FORMATIVE - DERIVATIVE RULES

NAME: _____

1. Let $g(x) = 2x \sin x$.

(a) Find $g'(x)$.

(4)

(b) Find the gradient of the graph of g at $x = \pi$.

(3)

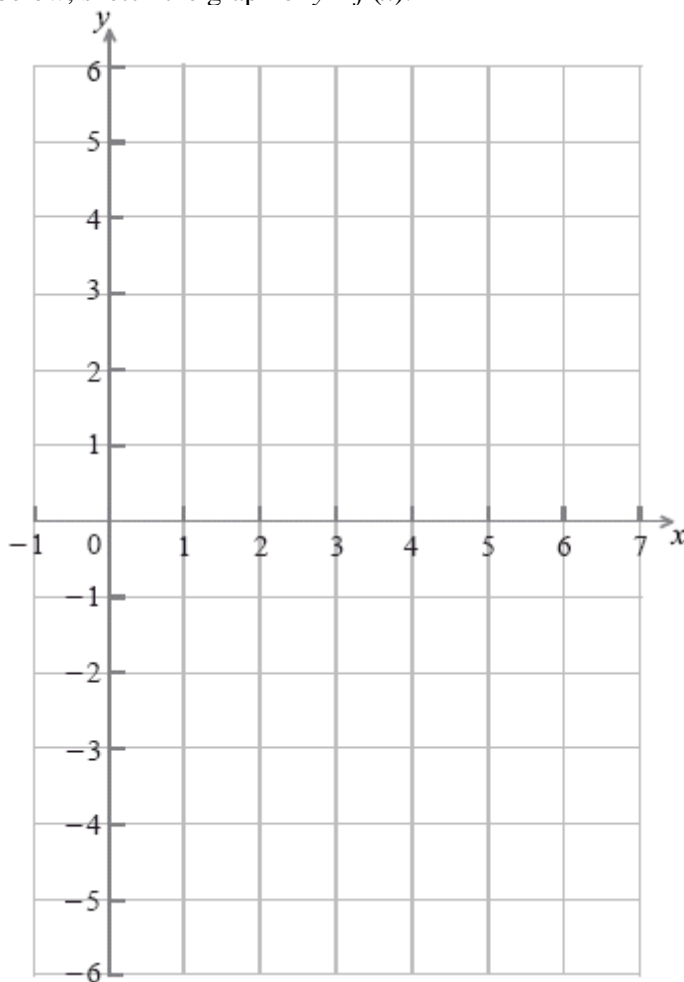
(Total 7 marks)

2. Let $f(x) = x \cos x$, for $0 \leq x \leq 6$.

(a) Find $f'(x)$.

(3)

(b) On the grid below, sketch the graph of $y = f'(x)$.



(4)

(Total 7 marks)

3. Let $h(x) = \frac{6x}{\cos x}$. Find $h'(0)$.

(Total 6 marks)

4. Let $f(x) = e^{-3x}$ and $g(x) = \sin\left(x - \frac{\pi}{3}\right)$.

(a) Write down

(i) $f'(x)$;

(ii) $g'(x)$.

(2)

(b) Let $h(x) = e^{-3x} \sin\left(x - \frac{\pi}{3}\right)$. Find the exact value of $h'\left(\frac{\pi}{3}\right)$.

(4)

(Total 6 marks)