



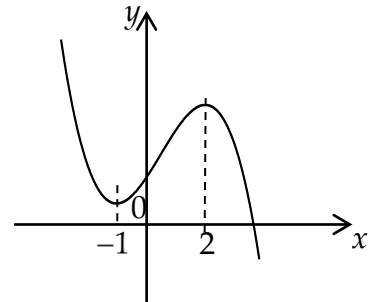
Ross High School: Mathematics Department

Higher Mathematics: Homework 16

1. The diagram shows part of the graph of a cubic with equation $y = g(x)$.

The graph has turning points at $x = -1$ and $x = 2$.

Sketch the graph of $y = g'(x)$?



(2)

2. Given that $y = \sqrt{5x^2 + 3}$, find $\frac{dy}{dx}$.

(4)

3. Given that $y = 3\sin(x) + \cos(2x)$, find $\frac{dy}{dx}$.

(3)

4. Given that $f(x) = 5(7 - 2x)^3$, find the value of $f'(4)$.

(4)

5. If $y = \frac{1}{x^3} - \cos 3x$, $x \neq 0$, find $\frac{dy}{dx}$.

(3)

6. An aeroplane flies in a straight line at a constant speed. It takes 3 hours to fly from A to B and 4 hours to fly from B to C.

Relative to coordinate axes, A is $(0, -1, 6)$ and C is $(7, 6, -1)$.

Find the coordinates of B.



(3)