

Q1. A curve for which  $\frac{dy}{dx} = 3x^2 + 2x + 1$  passes through  $(-1, -1)$ .

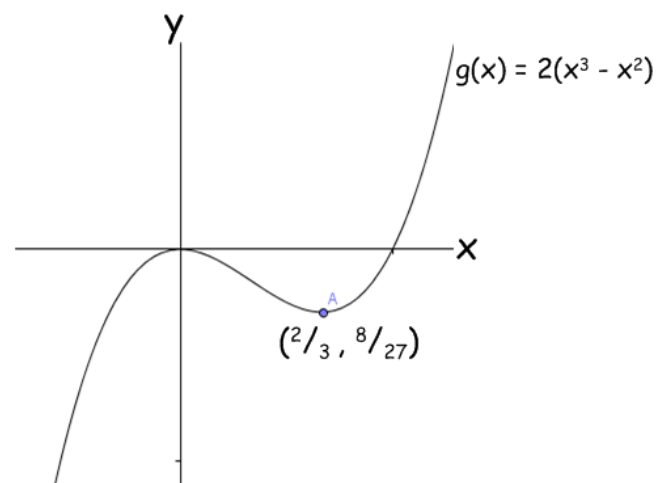
Find  $y$  in terms of  $x$

Q2. State the maximum and minimum values of the graph  $f(x) = 2x^2(2 + x)$  on the closed interval  $-1 \leq x \leq 1$

Q3. Find the rate of change of  $y = \frac{\sqrt{x}+1}{(\sqrt{x})^3}$  when  $x = 4$ .

Q4. Given the curve  $g(x) = 2(x^3 - x^2)$

Sketch the graph of  $g'(x)$



Q5. Sketch and annotate fully the curve  $y = (x + 1)^2(x + 4)$

Q6. The graph for the equation  $y = x^2 - 5x$

is shown below. Calculate the shaded area.

