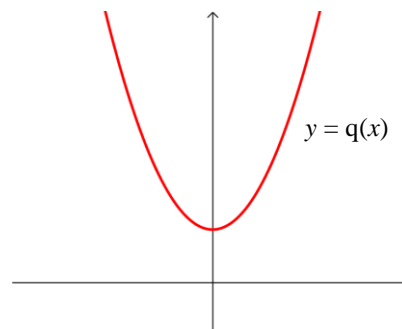
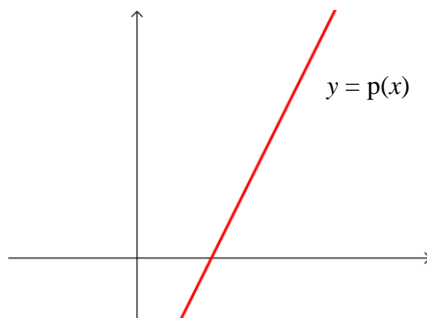
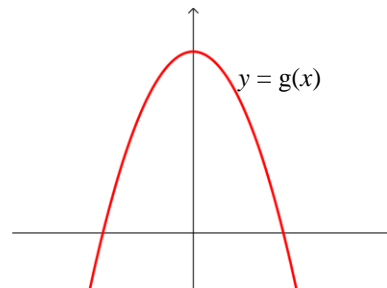
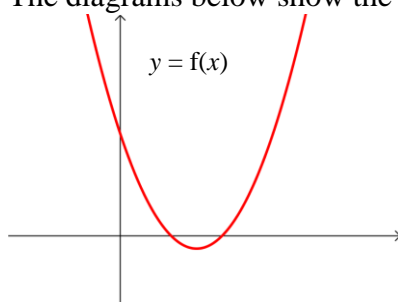


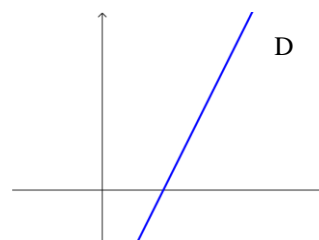
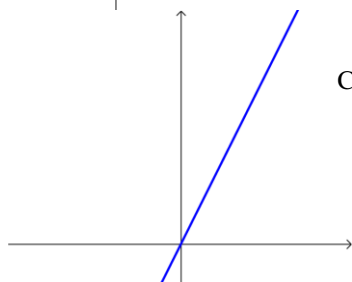
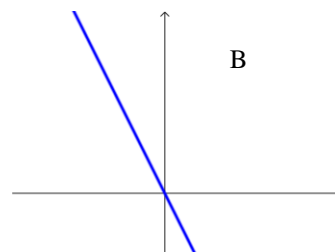
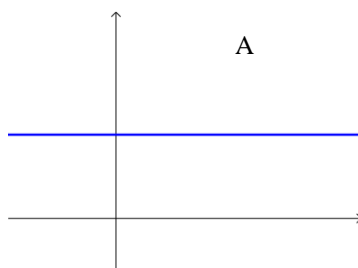
Section 2: Maximum and minimum points

Exercise level 1

- Find the range of values of x for which $f(x) = 2x^2 - 3x + 1$ is an increasing function.
- Find the range of values of x for which $f(x) = 4 + 7x - 3x^2$ is a decreasing function.
- The diagrams below show the graphs of four functions: $f(x)$, $g(x)$, $p(x)$ and $q(x)$.



The diagrams below show the gradient functions of $f(x)$, $g(x)$, $p(x)$ and $q(x)$. Match the diagrams A, B, C and D to the equations $y = f'(x)$, $y = g'(x)$, $y = p'(x)$ and $y = q'(x)$.



CCEA AS Maths Differentiation 2 Exercise

4. A curve has equation $y = x^3 + 6x^2 + 9x$.
- Differentiate the function to obtain $\frac{dy}{dx}$.
 - Find the x coordinates of the points where $\frac{dy}{dx} = 0$ and hence the coordinates of the turning points on the curve.
 - By considering the sign of $\frac{dy}{dx}$ on either side of the turning points, determine whether the turning points are maximum or minimum points.
 - Sketch the curve showing the turning points and points of intersection with the axes clearly.