**IB SL MATHEMATICS**

**TOPIC: CALCULUS**

**CLASSWORK**

1. Find an equation of the tangent to the curve with equation $y = x^2 - 9x^{-1}$ at the point ( 3, 6)

2. Given that $y = x^3 - 4x^2 - 5x - 2$, Find
   a. The derivative at point x=3, label the point P
   b. Determine the y co ordinate of P
   c. Find the equation of the tangent at P
   d. Find the equation of the normal at P
   e. Find the values of x for which the curve has a gradient of 5

3. Find all stationary points on the curve $y = x^2 + \frac{16}{x}$
   a. Determine the interval/s where the function is decreasing or increasing

4. Given the function $y = 3x^4 + 4x^3$
   a. Find all stationary points
   b. Classify all points
   c. Draw a sketch of the graph

5. Given the curve with the equation $y = 2x^3 - 3x^2 - 12x + 5$
   a. Find all stationary points
   b. Determine the type of inflection point
   c. Sketch the curve