

MA1 Homework 30

- The slope of the tangent to the curve $y^3 - xy^2 = 4$ at the point where $y = 2$ is
A) -2 B) $\frac{1}{4}$ C) $-\frac{1}{2}$ D) $\frac{1}{2}$ E) 2
- The slope of the curve $y^2 - xy - 3x = 1$ at the point $(0, -1)$ is
A) -1 B) -2 C) 1 D) 2 E) -3
- Write the equation of the line tangent to the graph of $f(x) = x^4 - 3x + 1$ at $(1, -1)$.
- Write the equation of the tangent line to the graph of $f(x) = \frac{x^2 + 1}{x^2 - 1}$ at $x = 2$.
- Find all points on the curve $y = \frac{x + 1}{x - 1}$ where the tangent line is parallel to $2y + x = 10$.
- Find the coordinates of all points on the graph of $y = x^3 - 12x + 4$ where the tangent line is horizontal.
- Write the equation of the line tangent to the graph of $y = \sin^2 x$ at the point where $x = \frac{\pi}{3}$.
- Write the equation of the normal to the graph of $f(x) = 1 + \cos x$ at the point $(\frac{\pi}{3}, \frac{3}{2})$.
- Write the equation of the line tangent to the curve $y = \tan^2 x$ at the point $(\frac{\pi}{3}, 3)$.
- Write the equation of the normal to the graph of $f(x) = 3\sec^2 x$ at the point $(\frac{\pi}{6}, 3)$.
- The equation of the line tangent to $f(x) = \frac{kx + 8}{k + x}$ at $x = -2$ is $y = x + 4$. Find the value of k .