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Course code: MAT 104

Assignment

1 $y = 2x^2$ at the point $(1, 2)$

Solution

① $\frac{dy}{dx} = 4x$

$\frac{dy}{dx}(x=1) = 4(1) = 4$
 $m = 4$

$x_1 = 1, y_1 = 2$

$y - y_1 = m(x - x_1)$

$y - 2 = 4(x - 1)$

$y - 2 = 4x - 4$

$y - 4x - 2 + 4 = 0$

$y - 4x + 2 = 0$

② $m_1, m_2 = -1$
 $m_2 = -1/4$

$y - y_1 = m(x - x_1)$

$y - 2 = -1/4(x - 1)$

$4y - 8 = -x + 1$

$4y + x - 8 - 1 = 0$

$4y + x - 9 = 0$

2 $y = 3x^2 - 2x$ at the point $(2, 8)$

Solution

① $\frac{dy}{dx} = 6x - 2$

$\frac{dy}{dx}(x=2) = 6(2) - 2 = 10$
 $m = 10$

$x_1 = 2, y_1 = 8$

$y - y_1 = m(x - x_1)$

$y - 8 = 10(x - 2)$