

Worksheet 2015-12 EK-00005(2) Rules and tangents

(1) Use first principles to determine $f'(x)$ if $f(x) = (x + 3)^2$.

[illegible]

(2) Find $\frac{dy}{dx}$ if:

(a) $2y = \sqrt{4x} - \sqrt{5}$

(b) $xy = 2$

(3) Determine the equation of the tangent to $p(x) = -6x^2$, where $x = -1$.

(4) Determine the coordinates of the point of tangency between $t(x) = 2x^2 - x + 1$ and tangent $q(x) = 8x + 13$.

(5) $f(x) = 3x^2 + 1$

Explain what it means if you have calculated the following:

$$\lim_{h \rightarrow 0} \left(\frac{f(2 + h) - f(2)}{h} \right)$$
