

Analysis Review Worksheet

(1) Find $\frac{dy}{dx}$ using the definition of the derivative.

(a) $y = \frac{2x + 5}{3x + 2}$

(b) $y = \sqrt{1 - 6x}$

(2) Find $\frac{dy}{dx}$ and simplify please.

(a) $y = 6x^3 - 5x^2 + 2x - 1$

(h) $xy + y^3 = 5$

(b) $y = 4(2x + 3)^5$

(i) $3x^3y^2 - 2x^2y^3 + 5x - y = 2$

(c) $y = 4x(2x + 3)^5$

(j) $x^{\frac{2}{3}} + y^{\frac{2}{3}} = 6$

(d) $y = (9x + 5)^4 (8x - 1)^3$

(k) $y = \frac{(2x + 3)^3}{(3x - 1)^4}$

(e) $y = \frac{3}{(1 - x)^3}$

(l) $y = \frac{x^2}{\sqrt{1 - x^2}}$

(f) $y = \frac{3x}{(1 - x)^3}$

(m) $y = \sqrt{2x} + \frac{1}{\sqrt{2x}}$

(g) $y = \left(\frac{x+1}{x-1}\right)^3$

(n) $y = \sqrt[3]{(6x + 5)^2}$