

Differentiation - Quotient Rule 1

1. Differentiate the following (do not forget to consider the chain rule):

a) $f(x) = \frac{(2x-3)^2}{2x}$

b) $f(x) = \frac{(5x-3)^3}{3x}$

c) $f(x) = \frac{(2x+1)^3}{x^2}$

d) $f(x) = \frac{(5x+1)^4}{(2x-3)}$

e) $f(x) = \frac{(2x)^3}{\sqrt{x}}$

f) $f(x) = \frac{(4-x)^2}{\sqrt{3x}}$

2. For the following function, $f(x) = \frac{(4-2x)^3}{4x}$, find:

a) $f'(x)$

b) Find the gradient of the tangent at $x = 1$

3. For the following function, $f(x) = \frac{(2-x)^3}{x^2}$, find:

- a) $f'(x)$
- b) Find the gradient of the tangent at $x = 1$
- c) The equation of the tangent at $x = 1$
- d) The equation of the normal at $x = 1$