

### 3.8 Quotient Rule

The Quotient Rule covers all functions in the form  $f(x) = \frac{a(x)}{b(x)}$ .

The Quotient Rule states:  $f(x) = \frac{a(x)}{b(x)} \rightarrow f'(x) = \frac{a'(x)b(x) - a(x)b'(x)}{(b(x))^2}$

REPEAT AFTER ME: “the derivative of the top times the bottom minus the top times the derivative of the bottom all over the bottom squared”

Ex 1 Find  $f'(x)$

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

b.  $f(x) = \frac{2x}{x^2 + 1}$

Ex 2 Find all the values of  $x$  where the tangent is horizontal.  $f(x) = \frac{2x + 8}{\sqrt{x}}$