

# What's in the workbook?

- ✓ get quickly to the right page

- ✓ find key formulas and step by step instructions

- ✓ learn from exam-style examples

- ✓ see how to set out your working

- ✓ know what CAS keys to press

- ✓ add your own notes/examples

✓ **I can:** find the derivative of a function at a point

	'look' of function	derivative
<b>d4</b>	quotient of 2 functions	$\frac{g(x)}{h(x)}$ $\frac{h(x)g'(x) - g(x)h'(x)}{[h(x)]^2}$
<b>d5</b>	function raised to a power	$k[g(x)]^n$ $kn[g(x)]^{n-1}g'(x)$

- dc5**
- 1 find the derivative
  - 2 substitute the  $x$ -value
  - 3 simplify
- Eg 1  
Eg 2b.  
Eg 3

**Eg 1** Consider the function  $f$  where  $f(x) = \frac{7}{4-x}$ ,  $x \neq 4$ .

If  $f'(-1) = \frac{a}{b^2}$ , find the values of  $a$  and  $b$  where  $a, b \in \mathbb{Z}$ .

$$f(x) = \frac{7}{4-x}$$

$$f'(x) = \frac{(4-x) \cdot 0 - 7(-1)}{(4-x)^2} = \frac{7}{(4-x)^2}$$

or

$$f(x) = \frac{7}{4-x}$$

$$= 7(4-x)^{-1}$$

$$f'(x) = (-1)7(4-x)^{-2}(-1) = \frac{7}{(4-x)^2}$$

$$f'(-1) = \frac{7}{(4-(-1))^2} = \frac{7}{5^2} \therefore a = 7, b = 5$$



• define  $f(x)$

$f(x) = \frac{7}{4-x}$  Done

4 Calculus 2 Derivative at a Point...

**Derivative at a Point**

Variable:  $x$

Value:  $-1$  enter

$\frac{d}{dx}(f(x))|_{x=-1} = \frac{7}{25}$

my eg

- ✓ includes algorithms and pseudocode