

# Quiz #3

Key

① find  $f'$  if a)  $f(x) = \frac{3}{(x^4+2)}$

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

b)  $f(x) = 3x \ln x$

$$= \frac{-12x^3}{(x^4+2)^2}$$

$$f'(x) = 3 \left[ \ln x + \frac{x}{x} \right]$$

$$= 3(1 + \ln x)$$

② find the marginal cost  $c(q) = (2q+1)^2$

$$MC = \frac{dc}{dq} = 2(2q+1)(2) = 4(2q+1)$$