

## Differentiation Practice 2

Find the gradient of each curve at the point with the given x co-ordinate.

Write  $x^n$  as  $x^{\wedge}n$ .

1.  $y = 3x^3 + 2x^2$  at  $x = 3$

Gradient function =

Gradient at  $x = 3$  is

2.  $y = -2x^4 + 3x^2$  at  $x = -2$

Gradient function =

Gradient at  $x = -2$  is

3.  $y = 3x^4 + 6x^3 - 3x^2$  at  $x = -1$

Gradient function =

Gradient at  $x = -1$  is

Find the first derivative  $f'(x)$  for the following.

1.  $f(x) = x^3(x^2 + 2x)$

$$f'(x) =$$

2.  $f(x) = (4x + 1)(3x + 5)$

$$f'(x) =$$

3.  $f(x) = (x + 3)^2$

$$f'(x) =$$

4.  $f(x) = (2x - 7)(3x + 4)$

$$f'(x) =$$

5.  $f(x) = 5(x-3)(x+7)$

$$f'(x) =$$