

# NCEA Level 3 Calculus (Integration)

## 16. Anti-differentiation (Homework)

### Reading

Go and watch...

<https://www.youtube.com/watch?v=7dcDuVyzb8Y>

### Questions

- Find the most general antiderivative.
  - $f(x) = x - 3$
  - $f(x) = (x + 1)(x + 2)$
  - $f(\theta) = 6\theta^2 - 7\sec^2 \theta$
  - $g(h) = \pi^2$
  - $f(x) = x^{3.7} + \sqrt{x} + 7x^{\sqrt{7}-1}$
- Given that the graph of  $\varphi$  passes through the point  $(1, 6)$  and that the slope of its tangent line at  $(x, \varphi(x))$  is  $2x + 1$ , find  $\varphi(2)$ .
- This is the second derivative of  $g$ . Find  $g$  given that  $g'(0) = 0$  and  $g(0) = 1$ .

