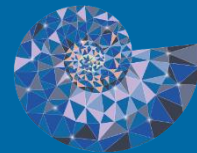# Differentiating functions with two or more terms

**Gold**

Let:

$$f(x) = k\sqrt{x} + \frac{1}{x}$$

where $k$ is a real constant and $x > 0$. Given that $f'(3) = \frac{8}{9}$, find $k$, giving your answer in the form $q\sqrt{3}$ where $q$ is a rational number.

**Silver**

Differentiate with respect to $x$:

$$\frac{3x^5 + 1}{\sqrt{x}}$$

**Bronze**

Given that:

$$y = 2x^4 - 5x^2 + 3$$

find $\dfrac{dy}{dx}$