

23rd Jan



Corbettmaths

Given that

$$y = 7x^4 + 1 - 6x^{\frac{1}{2}} \quad x > 0$$

Find  $\frac{dy}{dx}$ 

Patrick is carrying out experiments. In each experiment, he increases the amount of force applied such that it forms an arithmetic progression.

In the first experiment, 5N was applied. In the second experiment, 6.5N was applied, and so on.

Find the force applied in the ninth experiment.

Solve

$$2^{x+4} = 16^{2x-1}$$

The quadratic equation  $(k + 2)x^2 + 4x + k = -5$  has real roots.

Find the possible range of values of  $k$ .

Prove

$$S_n = \frac{n}{2} [2a + (n-1)d]$$