

# 1

Source: [Graphene manufacturer Versarien raises £400k with share placing](#)

Versarien, a graphene manufacturing company receives over 400 pounds in funding via stock investment from various companies. Versarien researches usage of graphene in biomedical, clothing, automotive, and aerospace. Versarien is also reportedly losing millions of pounds every year and selling off parts of itself.

## 2.3

178.485 amu

## 2.6

1. Electrons orbit at a finite amount of well defined radii around the nucleus
2. Exciting or deexciting electrons takes and emits light energy while changing energy levels and their orbit radius

## 2.18

### 1

$$\frac{dE_N}{dr} = \frac{A}{r^2} - \frac{nB}{r^{n+1}} = 0$$

### 2

$$Ar^{n-1} - nB = 0$$

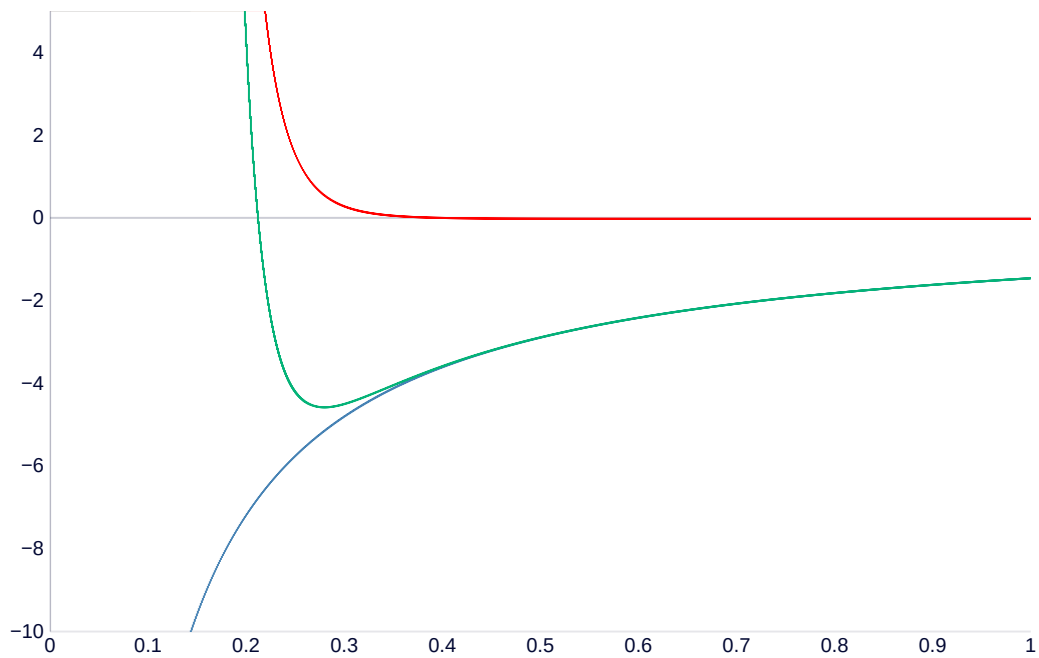
$$r = \sqrt[n-1]{\frac{nB}{A}} = r_0$$

### 3

$$E_N = -\frac{A}{\sqrt[n-1]{\frac{nB}{A}}} + \frac{B}{\sqrt[n-1]{\frac{nB}{A}}}$$

## 2.19

### a



**b**

$$\begin{cases} r_0 = 0.279 \\ E_N = -4.575 \end{cases}$$

**c**

$$\begin{cases} r_0 = \sqrt[n-1]{\frac{nB}{A}} \\ A = 1.436 \\ B = 5.87 \times 10^{-6} \\ n = 9 \end{cases}$$

$$r_0 = 0.279$$

$$\begin{cases} E_N = -\frac{A}{r} + \frac{B}{r^n} \\ r = 0.279 \end{cases}$$

$$E_N = -4.574$$

They are very close because I can just trace my cursor to the bottom of the curve