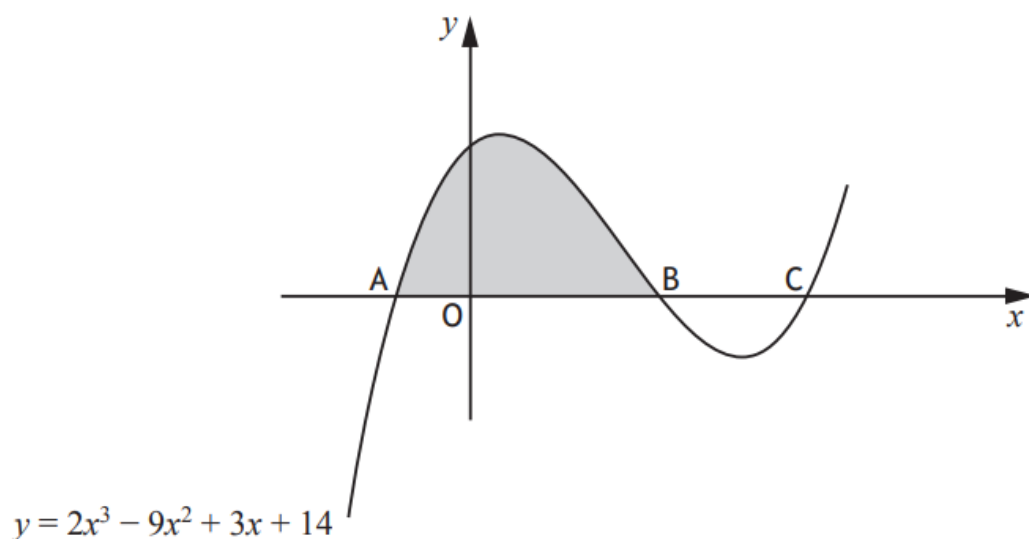(a) (i) Show that $(x+1)$ is a factor of $2x^3 - 9x^2 + 3x + 14$. **2**

  (ii) Hence solve the equation $2x^3 - 9x^2 + 3x + 14 = 0$. **3**

(b) The diagram below shows the graph with equation $y = 2x^3 - 9x^2 + 3x + 14$.

  The curve cuts the x-axis at A, B and C.

$y = 2x^3 - 9x^2 + 3x + 14$

  (i) Write down the coordinates of the points A and B. **1**

  (ii) Hence calculate the shaded area in the diagram. **4**

Answers:

(a) (i) Proof. Substitute $x = -1$, use synthetic division or use polynomial long division.

  (ii) $x = -1,\ 2,\ 3\cdot5$

(b) (i) $(-1,0)$ and $(2,0)$

  (ii) 27