6 The polynomial p is such that $\mathrm{p}(x) = ax^3 + 11x^2 + bx + c$, where a, b and c are integers.
It is given that $\mathrm{p}'(0) = 12$.
It is also given that $x + 3$ is a factor of p.
When p is divided by $x - 1$ the remainder is 16.

Find the values of a, b and c. [6]

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7 When e^{5y} is plotted against x^3, a straight line passing through the points $(-2.56, 4.38)$ and $(6.54, 9.84)$ is obtained.

(a) Find y in terms of x. [5]

(b) Find the values of x for which y can exist. [3]

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