9 DO NOT USE A CALCULATOR IN THIS QUESTION.

Write $\dfrac{16+11\sqrt{10}}{2+\sqrt{10}}+1$ in the form $p+q\sqrt{10}$, where p and q are integers. [4]

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10 (a) Suzma is training for a marathon. In the first week she runs 10 km. Then each week she runs a distance that is 10% greater than the week before.

The total distance that Suzma has run by the end of n whole weeks is more than 200 km. Find the smallest possible value of n. [4]

(b) A geometric progression has 1st term a and common ratio r, where $a \neq 0$ and $r \neq 1$. The 1st, 2nd and 3rd terms of the geometric progression are the 1st, 3rd and 7th terms of an arithmetic progression. Find the value of r. [4]

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