Three terms of an arithmetic sequence, u_3, u_7 and u_{16} form the first three terms of a geometric sequence.

Show that $a = \dfrac{6}{5}d$, where a and d are, respectively, the first term and common difference of the arithmetic sequence with $d \neq 0$.

Hence, or otherwise, find the value of r, the common ratio of the geometric sequence.

4

Method:

Create the formulae for u_3, u_7 and u_{16} of the arithmetic sequence. Then form the ratios of the geometric sequence, cross-multiply and solve the resulting quadratic equation to obtain $a = \dfrac{6}{5}$ d.

Substitute to obtain r = $\dfrac{9}{4}$.