10 **(a)** A geometric progression has first term a and common ratio r, where $r > 0$. The second term of this progression is 8. The sum of the third and fourth terms is 160.

(i) Show that r satisfies the equation $r^2 + r - 20 = 0$. [4]

(ii) Find the value of a. [3]

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(b) An arithmetic progression has first term p and common difference 2. The qth term of this progression is 14.
A different arithmetic progression has first term p and common difference 4. The sum of the first q terms of this progression is 168.

Find the values of p and q. [6]